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THE DEFENSE OF THE UNITED STATES

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PREFACE

AMERICAN concern with the problem of national defense, as one of the speakers at the annual meeting of the Academy of Political Science so aptly remarked, has usually been a crisis phenomenon. Too often we have made decisions of momentous import for the general welfare of the nation under the influence of abnormal economic and political tensions. Throughout our history the errors thus induced have been both numerous and costly. Many of them might have been avoided had there been opportunity to weigh alternatives and to consider consequences, for the compulsions of crisis, however imperative at the moment, are inadequate determinants of a long-range program. Neither material nor spiritual security can be won in recurrent cycles of feverish activity and negligent apathy. Once again we face the danger that defense policies may be defined in terms of immediate advantage, with too little regard for the continuing interests of the nation. As its contribution to public discussion of this problem, the Academy chose "The Defense of the United States" for consideration in its Sixtieth Annual Meeting, held at the Hotel Astor in New York City on November 13, 1940.

The readers of these PROCEEDINGS will appreciate the discrimination with which each speaker fitted his own special interests into the general theme. To all who participated in the discussions the Academy extends its thanks, and particularly to the members of the Committee on Program and Arrangements: Lewis W. Douglas (Chairman), Miss Ethel Warner (Director), Frank Altschul, W. Randolph Burgess, Grenville Clarke, William L. Clayton, Frederic R. Coudert, Leon Fraser, William Hard, Nicholas Kelley, Frank Kingdon, Thomas W. Lamont, Charles Merz, Wesley C. Mitchell, Shepard Morgan, William L. Ransom, George A. Sloan, Herbert Bayard Swope, William Allen White, Leo Wolman, Owen D. Young.

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PART I

THE BASES OF AN AMERICAN DEFENSE POLICY —ARMED FORCES

INTRODUCTION *

WESLEY C. MITCHELL, *Presiding*
Professor of Economics, Columbia University
Director, National Bureau of Economic Research
President of The Academy of Political Science

I HAVE the honor of calling to order the Sixtieth Annual Meeting of the Academy of Political Science.

It is in the tradition of the Academy to discuss subjects of current importance in the social life of the nation. Strictly in accordance with that tradition, we are devoting the present meeting to the defense of the United States, a topic concerning which there is a degree of national unity in intent and purpose that is most gratifying. Happily, a number of distinguished experts have consented to discuss some of the more important aspects of this problem for our benefit. You have come here this morning to hear what they have to say, not to listen to the casual remarks of a presiding officer. Therefore, I shall introduce without further delay the speakers at the morning session, beginning with Edward M. Earle, Professor of History in the School of Economics and Politics, The Institute for Advanced Study, who will address you on "Political and Military Strategy for the United States". Professor Earle!

* Opening remarks at the First Session of the Annual Meeting.

POLITICAL AND MILITARY STRATEGY FOR THE UNITED STATES

EDWARD MEAD EARLE
Professor in the School of Economics and Politics
The Institute for Advanced Study, Princeton, N. J.

I CANNOT begin this brief talk without saying in the first instance how happy I am to be here. I taught for about fifteen years at Columbia, where the Academy of Political Science is a favored child, and it is a great pleasure and an honor to come back and take part in a program which is under the auspices of my old Columbia friends.

The interest of political scientists in national defense has been an endemic rather than a continuous thing. When the nation faces a crisis, as it does now, scholars become alarmed about the defense of the nation. When there appears to be a state of relative security, defense drops entirely out of the agenda of scientific meetings and never has been in the curricula of colleges and universities. This is a strange phenomenon, because, after all, military defense is one of the basic functions of government, expressed in the axiom that self-preservation is the first law of nature and of nations. Indeed, such defense is specifically described in the Constitution of the United States as one of the basic functions of this government, and if you will permit me, I shall read the Preamble to the Constitution:

> "We, the people of the United States, in order to form a more perfect Union, establish Justice, insure domestic Tranquillity, provide for the common defence, promote the general welfare and secure the blessings of Liberty to ourselves and our Posterity. . . ."

In the view of the fathers of this nation, therefore, defense was conceived to be inseparably associated with the other fundamental functions of government, not merely in time of crisis but at all times. It is encouraging to find an Academy

of Political Science concerning itself with problems of national defense. One can only wish that political scientists as a body would concern themselves with it as one of their basic problems and not simply as a crisis phenomenon.

There are here this morning enough distinguished persons qualified to discuss the purely military aspects of national security, so that I can safely devote myself to its political phases, especially in so far as the latter must be integrated with the military, strategical and tactical problems of defense.

To begin with, the word "defense" is in itself misleading. It implies that armed forces are to be brought into action only when a nation is attacked—that is to say, when its territories are actually invaded. Any such definition of the term is likely to prove disastrous to the nation which adopts it, because defense is a much more far-reaching concept than mere sitting back and waiting until the enemy is at one's gates. Perhaps a better word to use is security. The purpose of armed forces is not merely the defense of the nation in the sense of resisting attack on its territorial possessions; it is more than that. It requires that a nation maintain itself in a state of preparedness adequate to enable it to wage war effectively in defense of its national interests. That goes far beyond a mere parochial view of national defense. This concept is, of course, deeply rooted in the history of the United States as well as in the history of other countries.

Where a nation views its security as concerned merely with the defense of its territories, it very frequently finds itself unable successfully to defend even those territories in the event of attack. When it conceives of defense as something more than that, as involving political policies which will clearly define the interests which the nation considers vital and for which it is determined if necessary to fight, it is very likely to have not only an extraordinary degree of success in defending its own territories, but, what is more important, it is more likely to avoid war altogether.

One might interpret the whole history of the American people from colonial times to the present with some reference to their ability to regard security as a broad rather than a narrow concept. When we were colonies of the British Empire, defense was an ever-present problem with us, because

we had a frontier which was the scene of more or less continuous fighting. As colonies, we deemed it in our interest to eliminate the French empire on the continent of North America, because so long as that empire existed, it would become increasingly difficult, if indeed it were possible at all, for us to maintain successfully as against attack the long, thin line of the frontier in the woods and prairies along and beyond the Alleghenies. We took part in the various wars of Great Britain during colonial times, not in the interests of Great Britain, but in our own interests. In other words, there existed virtually an alliance between Great Britain and the American Colonies for the purpose of eliminating the French from the continent of North America.

The American Revolution was, in a sense, simply a continuation of that policy, except that in this case it was the British who had to be eliminated from the trans-Allegheny region and the St. Lawrence Valley, if we were to feel ourselves secure or were actually to be secure against attack.[1]

This is not an arbitrary interpretation of American history. Those who have the time and the disposition to examine it further will find it adequately supported in the writings of Benjamin Franklin, who had as clear-cut a conception of security, from the point of view just described, as any statesman has ever had.

When we became a free people, this policy was continued. We made it perfectly plain from the very inception of this nation that we would not allow, so far as it lay within our power to prevent it, transfers of territory on this continent and in the Caribbean region from one non-American nation to another. In the case of Louisiana, Jefferson, who is ordinarily accredited with being the most convinced pacifist who ever occupied the White House, asserted emphatically that he was prepared to fight, if necessary, in alliance with Great Britain to prevent the reëstablishment of a French colonial empire on this continent, on the grounds, among other things, that so long as that French colonial empire existed, the security of these United States was imperiled. In a very remarkable letter

[1] For a further development of this thesis see my article "National Security and Foreign Policy" in *The Yale Review*, volume XXIX, pp. 444-460 (Spring 1940).

which is less frequently cited than it should be, Jefferson also declared, at a time when Napoleon was overrunning Europe, that it was not in the interests of the United States to allow a single power to dominate the European continent, even if military intervention were necessary to prevent it.[2]

The elimination of Spain from the Floridas was, of course, part of the same policy. The Monroe Doctrine likewise was, in essence, based upon the same conception of self-defense and self-preservation as being one of the fundamental policies of government. That policy, which was very sweeping in its terms and which extended the diplomatic frontier of this nation thousands of miles, has been successfully defended over more than one hundred years, virtually without the firing of a shot.

It would be possible to amplify this thesis—that throughout our history, we have conceived national defense as being something more than mere resistance to attack. We have been fortunate in having in our early days, and even in our later history, a remarkable group of statesmen who believed that defense or security was not merely a crisis phenomenon, but an obligation of statecraft at all times, and that political as well as military maneuvers on our part and on the part of other nations in this hemisphere, and indeed in Europe and Asia, must be judged with relevance to their effect upon the security of these United States.

I have taken as a topic, "Political and Military Strategy for the United States". Perhaps I should define this word "strategy". First of all, let me take a dictionary definition. One dictionary says that strategy is "the science and art of employing the armed strength of a belligerent to secure the objects of a war; in a more restricted sense, the science and art of military command exercised to meet the enemy under advantageous conditions."[3]

In my judgment, this definition almost certainly overlooks, first, the universal usage of the word "strategy" in ordinary political literature; second, it ignores all the non-military factors in the problem of defense. It disregards in the final in-

[2] Jefferson to Thomas Leiper, January 1, 1814. *Writings of Thomas Jefferson* (Memorial edition), vol. XIV, pp. 43-44.

[3] *Webster's New International Dictionary*, second edition, unabridged. The Oxford dictionary and most others give substantially the same definition.

stance the fact that, under existing conditions, it is virtually impossible to draw any clear-cut line between war and peace. How, for example, could we at any period since, say, 1935 decide whether the world was in a state of peace or a state of war?

I am going to take the liberty of quoting just a brief section from an article which I wrote three years ago, and which was published in the journal of this Academy—*Political Science Quarterly*—to show that this concept was one which we should have recognized long before the present crisis arose:

> "War" is . . . a relative term. Heretofore war customarily began with a declaration of hostilities; no such formalities now seem necessary, as two good-sized wars are going on without legal status. [That was in 1937.] Furthermore, preparations for war have assumed such magnitude as to raise the question whether peace exists in more than name. In truth, the world may now be said to be in various stages of mobilization for war, of which armed hostilities are merely the most aggravated form. During mobilization, whether it be called rearmament or preparedeness or what you will, military conditions obviously take precedence. Some states have established in times of so-called peace a degree of war-time controls which would have delighted the military autocrats of the Great War, and demands for similar controls are being pressed elsewhere. Imports and exports are being restrained and raw materials are being allocated in the interests of war industries. Labor organizations have been suppressed, and labor has been conscripted. Quotas, boycotts, exchange controls, tariffs, excises, and the like are preliminary trading-with-the-enemy acts. Food is rationed. Taxation and military expenditures have reached astronomical proportions. Women and children are incorporated in the military machine. The civilian population is kept in a febrile state of emotional excitement which hitherto only war could produce. War is now frankly a process of attrition, and the race against exhaustion is under way. Standards of living are depressed to an alarming degree; one favorite slogan is, "guns, not butter". Paradoxically enough, the unrepaired ravages of world-wide depression provide momentum rather than deceleration to the mad whirl. Hence national resources are conserved or expended with one end in view, national self-preservation or aggrandizement. The concept of the nation in arms has become all-embracing.[4]

I simply quote the foregoing as an indication that a little political perspicacity years ago might have prevented the situation from deteriorating to the tragic point at which we now find ourselves. I submit, therefore, that we need a new defini-

[4] "American Military Policy and National Security", *Political Science Quarterly*, vol. LIII, pp. 2-3 (March 1938).

tion of strategy and, doubtless to the horror of my military friends on the platform, I am about to offer a tentative definition. It is a fairly long one, which no dictionary would incorporate within its austere pages; but it will suggest to you what I have in mind when I talk of political and military strategy as being closely and indeed inextricably related to each other. Well, for better or for worse, and my blood be on my head, here is the definition:

> Strategy comprises the science and art of controlling and utilizing the resources of a nation, including its armed forces, to the end that its vital interests (as interpreted by its de facto rulers) shall be effectively promoted and secured against all enemies, whether actual, potential or merely presumed. The highest type of strategy—properly denominated Grand Strategy—is that which so directs and integrates the policies and armaments of the nation that the resort to war is either rendered unnecessary or is undertaken with the maximum chances of victory. As Admiral Mahan pointed out, strategy temporarily ends and tactics begins at the moment when armed forces actually engage in conflict; strategy is therefore not merely a concept of war time, but an inseparable element in statecraft at all times. The line dividing peace from war is no longer definite, if indeed it may be said to exist at all; it has been finally cut through and obliterated by the doctrines and activities of the totalitarian powers, and only a narrowly restricted terminology would now define strategy as the mere science and art of military command.

I expect that this definition will involve me in a prolonged correspondence.

Assuming that this is a working tentative definition, what does it imply for the United States? Does it imply that we shall conceive of defense as being merely the creation and the maintenance of such armed forces as will enable us to resist attack; if so, what does "attack" mean? (I might interpolate at this time that it is, in my judgment, from the standpoint of the history of the United States, and indeed of the whole world, a tragedy that we should have been engaged during the last six weeks in a political campaign which led spokesmen for both parties to outdo one another in statements which, if really representative of their intentions, to all intents and purposes paralyze effective action on the part of the United States in the present situation and narrowly circumscribe the defense of its interests. Let us hope that such expressions represented merely the excited condition of a campaign and that from this

point on, regardless of partisan political consideration, or regardless of the attitude which we took, as individuals during the past election, we may conceive of defense as not something which is the subject for campaign speeches so much as for serious, indeed almost reverent, consideration of the issues which we face at the present time.)

Now, I submit that if from this point on we interpret defense in a narrowly restricted sense, we shall run contrary to our whole historical tradition, which is to conceive of security as something which requires the extension of our diplomatic and of indeed our military frontiers beyond our mere territorial possessions. In this connection, I might point out to you that not so long ago we negotiated with Great Britain an agreement for the exchange of destroyers for naval bases which I think might properly be described, as the President described it, as the most important step which we have taken in our national defense since the Louisiana Purchase. That deal involves liabilities as well as assets; but, on the whole, it has created for us a strategic situation in the Caribbean and North Atlantic area which will enable us, if we will, to give full effect to the concept of hemispheric solidarity and hemispheric defense.

If we judge security as requiring something more than mere resistance to attack on our territorial possessions, the American people must seriously consider in a rational rather than an emotional atmosphere during the next few months the policies which we propose to pursue vis-à-vis the British Empire. A glance at the map, or better still a globe, will indicate the extent to which the interests of the United States have in the past been coincident with those of the British Empire. There appears to be no substantial division of opinion in this country on the point that aid shall be given to Britain, but we have used in that connection the deceptive phrase "short of war", overlooking the fact that war and peace are terms now exceedingly difficult, if indeed at all possible, to define. We must be prepared to answer the question ultimately—and the character of the military and naval operations in the North Atlantic suggests that we may have to answer the question sooner, rather than later—whether we are prepared, if necessary, and in the last analysis, to give Britain all aid which it is within our power to give, including, if necessary, naval, air and military

assistance. That is a question which we dislike to face, for reasons which all of us in this audience thoroughly understand. It is a question which I dislike to face, but it is a question which the American people cannot escape facing if they are seriously concerned with the security of this nation, broadly conceived. What is true of Britain will be true likewise of China. We must be prepared to admit that there may be further extensions of our military frontiers south of those naval bases now actually acquired in the Caribbean region. We must not allow ourselves to be worried by catchwords of any sort whatsoever in examining the necessity for the establishment of naval bases even farther south of those recently acquired.

Finally, let me say this: that if defense is regarded as mere resistance to attack on one's territorial possessions, the initiative, politically and militarily and economically, always will rest with our avowed or presumed enemy. If defense is conceived as security in a larger sense, the initiative can be ours, and only by taking the initiative, only by being prepared, if necessary, to wage war offensively, can we in the last analysis make sure that defense is something more than a phrase and is in fact a reality.

Remarks by the Chairman

Chairman Mitchell: The second address, which deals with "Military Organization", will be made by Mr. Hanson W. Baldwin, Military and Naval Correspondent of *The New York Times*. Mr. Baldwin!

MILITARY ORGANIZATION

HANSON W. BALDWIN
Military and Naval Correspondent, *The New York Times*

THE subject of my address—" Military Organization "—seems to me to be fully as difficult a problem as the *sailor's appetite.* That appetite — notoriously large and traditionally uncertain, as all sailors know—has nowhere been better classified than by the seaman who was asked by his captain how he liked his food. The seaman's reply was characteristic: " All right, sir," he said, " what there is of it."

" What's the matter? " the captain asked. " Don't you get enough to eat? "

" Oh yes sir," the sailor said, " such as it is."

Military organization of this, or any other country, is " all right, what there is of it, and such as it is."

But it is one of the creations of man that is always perpetually imperfect; like the streets of New York it is forever subject to attack by an army of pick-and-shovel critics who wish to tear up—or modify—the administrative and tactical structure of our Army and Navy and to lay new and more perfect roadways upon which the machines of war may roll with greater smoothness.

Hence, it is with temerity and a definite sense of my own inadequacy that I add my voice today to the vast army of pick-and-shovel workers, who since the days of the Roman legion and the Greek phalanx have been digging holes in the military organizations of their times.

I think that it is a most useful occupation—digging holes! In a democracy criticism is the sun and air and rain which makes possible the evolution, growth and progress of democratic processes. Without its free expression there is neither checkrein upon government nor spur to development.

Particularly needed at this time of world crisis, when the tide of change is raging to the flood, are public appreciation and critical analyses of our defense problems. Turbidness of

thought and expression, censorship of ideas must be swept from the attics of our minds by the clean broom of public opinion. We want no Maginot Lines of the spirit, no mistaken defensive concepts, no outworn theories of limited effort to hamper our defense program. We must forever and forever remember the tragic history of the Third French Republic, stifled and strangled by coiling red tape and the jungle-growth of bureaucracy; we must forever remember the tragic plight of the French people, confident in their ignorance, unawakened by any clarion call of criticism, betrayed by their own organs of public opinion which ranted and raved about political personalities but, in military matters, spoon-fed the public with the pap of prejudice or the sour milk of wishful thinking.

Virile, vigorous, open criticism is the lifeblood of any progressive institution, and constructive analysis of our strengths and weaknesses is nowhere more needed than in the difficult and specialized realm of military organization. We face tomorrow and tomorrow and tomorrow a more uncertain future than the world has known since the disintegration of the empire of Rome. We must not drug ourselves with hope. There is not only no surety that Great Britain can win this war; on the contrary, there is practical certainty that she cannot win unless the United States gives her unlimited aid by open and unrestricted participation in the conflict. If we enter the war, its entire course may well turn upon the strength of our military structure; if we do not enter it, the things we stand for and believe in, the future of our way of life, will depend in even greater measure upon the effectiveness of our military organization.

In discussing the military organization of the United States I want, first, to use that term in its broader sense, that is, to connote the administrative structure of our defense forces, and then more briefly to refer to the tactical organization of our Army.

The successful development of any military program requires three successive steps which, however, are closely integrated and related:

1. Careful formulation of coördinated defense plans, plans not limited to the Army alone, or the Navy alone, but plans inclusive of all branches of government—the State Department,

the Treasury Department, Labor, Justice, War, Navy, etc. We must remember that political and economic weapons are often more mighty than the sword; in the Napoleonic campaigns the power of the British pound was more effective than many armies.

2. Careful and coördinated procurement of the *matériel* and man power required by the plans. We must remember that modern war, and preparations for modern war, are total; as General Drum has so well said, war is an art, but it embraces and includes all the sciences; defense preparations, therefore, must be comprehensive and coördinated or chaos will result.

3. Coördinated direction of operations (in peace time, this means training; in war time, the actual conduct of the campaign) to the end that not only the Army and Navy may function as a team but in order that all departments of government may mesh smoothly into gear.

Any detailed examination of our present defense structure quickly reveals that there is no organization in our federal government consecrated to coördinated, comprehensive defense planning. There is no one commission, or board, to advise the President what, for instance, hemisphere defense means in military terms; there is no group of experts to study and ascertain what portion of the defense dollar could most usefully and effectively be employed for the purchase of planes, what portion should go for ships, for men, etc. There is no body dedicated to continuing study and research into defense policies and devoted to the formulation of defense plans—a body which, as Professor Lindsay Rogers has described it, should "confine itself to intellectual effort."

True, there are agencies which evolve war plans. There is the Cabinet, but the Cabinet, composed of departmental heads upon whom the pressure of office falls with terrific severity, scarcely has time or capacity for reasoned research and thorough planning. War decisions, based solely upon Cabinet opinions, therefore, are no more than snap judgments, and are subject to all the errors of unripe thought.

There are the war plans divisions of the Army and Navy and the joint boards which are supposed to coördinate the plans of those divisions. The planning done by the Army and the Navy is generally adequate technically, but the Navy's plans and the Army's plans are generally evolved separately

without adequate consideration of the needs of the sister service; no attempt is made to evaluate—*in terms of their combat efficiency to this country*—the various implements of defense, and there is none but the slimmest liaison between the plans of the service departments and the plans of other government departments. The history of the joint boards in the past has often been one of stultification and stagnation and stalemate; usually only subjects which can be disposed of are considered by the board; those about which the Army and Navy are known to have irreconcilable differences of opinion are rarely considered.

It has seemed to many, therefore, that an excellent case can be made for the creation of a defense planning commission. Some such body as this has been found necessary by every other government. England has a special War Cabinet and the Committee of Imperial Defense; Germany a Ministerial Council for the Defense of the Reich, and a Supreme Command of the Armed Forces, all of them devoted to planning as well as to execution. Obviously the organizations of dictatorship are not adaptable to democracy, but we can learn from potential enemy as well as from actual friend.

First and most important, therefore, of the alterations needed in our defense structure would seem to be the provision for some planning group. It should be a purely advisory body, composed of some of the nation's best brains, and should include representatives of the State Department, War, Navy, Treasury and, perhaps, other government departments. But in addition it should include a number of eminent and distinguished civilians, chosen for their clarity of thought and breadth of vision. In lieu of such a body, the next best solution would seem to be the creation of a special "Defense Cabinet", composed largely, if possible, of men not tied down to departmental duties. And gradually the nation should foster and nourish—perhaps with the splendid academic facilities of the Army War College in Washington as a nucleus—a college for the higher study of war, a college where the thinking about defense problems will not be fettered to the battlefield, a college where instructors and students will not be service officers alone but will include career diplomats, economists, publicists, government officials and civilians representative of many of the myriad endeavors which must all merge, and

merge happily, if an efficient defense organization is to be built up.

Adequate provision for defense planning is therefore the first and fundamental step in the creation of a sound defense.

But once plans are made and the numbers and types of weapons decided upon, once the programs are drawn in outline, weapons and men to translate blueprint dreams into strong realities must be procured. Procurement, unified and coördinated, is therefore a vital agency of defense. The National Defense Advisory Commission, more popularly called the Knudsen Commission, and the recently created Priorities Board are steps in the right direction, but we are still a long way from the ideal organization. The type of organization represented by the National Defense Advisory Commission was tested and found wanting in 1916; out of its throes and the pangs of the First World War, Bernard M. Baruch and his assistants evolved a new type of organization, which has been shaped and perfected these past twenty years in the office of the Assistant Secretary of War. What was eventually evolved was called the Industrial Mobilization Plan which comprehended and foresaw all of the needs of the war machine; but the foresight was wasted, for so far it has remained in a Washington pigeonhole. The sooner our procurement machinery approximates that provided for in the Industrial Mobilization Plan, the better and speedier the evolution of an adequate defense. It is, in any case, essential and inevitable that, if the Defense Advisory Commission is retained, it be given a chairman (it now has none, other than the President) and be clothed with power. Above all the nation must rid itself of the psychology of limited effort. The procurement of vast quantities of weapons—many of them not ordinarily manufactured in mass in time of peace—the enlistment and recruiting of large forces call for extraordinary effort. When young men are called upon to interrupt their normal lives by serving for a year in the nation's armed forces, it is obviously ridiculous to talk about business as usual and to say that the defense program will not interfere with the country's normal life. Of course, it will interfere; it must interfere if it is to be done efficiently; silk stockings and 1942 automobile models may have to be sacrificed on the altar of national mobilization, for the procurement job that is to be

done cannot be done by any single organization, no matter how ideal; it can be accomplished only by unified national—and willing—effort.

Given adequate planning and adequate procurement, the third step in our trinity of progress—unity of command—must be achieved, if we are to have well-trained and properly coördinated services. Napoleon wrote that "nothing is more important in war than unity of command." Given the weapons and the men, we must properly train those men in the use of the weapons; we must properly coördinate air forces with ground forces, naval effort with air effort, and the work of the fighting services must implement our political policies.

The federal structure of our government has happily, from the military point of view, bestowed upon the President, as chief executive and commander-in-chief of the Army and Navy, the necessary broad directive powers to enable him to act with full authority and decision in any emergency. The President, in theory, epitomizes that unity of command of which Napoleon wrote, and nothing should detract from that power. Nevertheless the Presidential responsibilities are heavy; the capacities of any one man, no matter how devoted, how brilliant and how energetic, are limited; the creation of a "Defense Cabinet" (with the President as its executive head) to assist him in execution and supervision as well as in planning would tend to promote greater unity of effort.

Other means looking toward the same end have been suggested. During his campaign for office Mr. Willkie endorsed the creation of a separate air force; other critics of our defense structure, many of them with the weight of authority behind them, have advocated the creation of a ministry of national defense, with Army, Navy and Air Force as three coequal and subordinate branches. There are many valid arguments in favor of such a radical change in administration. Certainly air power has too long been the stepchild of the services, particularly of the Army; certainly the plane has proved its terrible efficiency in the shambles of Europe; certainly the plane which can leap mountains and span oceans has shown that it has a strategic as well as a tactical use, that it has in war many independent missions in which the earth-bound services cannot participate, that it has such terrible potentialities of destruction that it may yet render battles, in the old sense,

unnecessary. But, largely unnoticed by the public, this new conception of air power has gained wider and wider acceptance in our armed services and has forced greater and greater recognition of the needs of the air forces. The wings of Daedalus are indeed growing to immense proportions. Our present development plans—which call for the acquisition of more than 20,000 combat planes and 36,000 pilots—show no lack of emphasis upon the air arm; indeed there seems danger that—numerically—its needs may be exaggerated in the public mind. Moreover, the naval air service—admittedly the world's best—is now, and has long been, full and equal peer of the surface ships; the Navy's officers are far more air-minded than those of any other fleet in the world. The Army, too, has gradually bestowed more and more power upon the chiefs of the Air Corps. General Arnold, formerly the distinguished chief of the Air Corps, who was to have been with us later in this program, and who is so well known to all in the service as "Happy" or "Hap" Arnold, has but lately been made Deputy Chief of Staff, a hitherto unprecedented recognition of the strength of the air arm.

Thus, contrary to most assumptions, administrative and tactical thought about the relation of the air arm to the older services has not remained static. True, much of the progress made has been forced upon the Army and Navy by the pressure of public opinion and by the obvious lessons of the war; for this reason consideration of the question of a separate air arm should not be forever quashed; it is quite possible that in quieter times a third separate fighting service should be evolved. But there seem to me to be compelling reasons against any such change today. First, it would be a mistake to assume that coördinated operations and unity of action could be achieved merely by the creation of a third service, when it is obvious that coördination is far from perfect today when only two fighting services exist. Second, the dislocation to our defense effort incident to such a sweeping reorganization, coming at this most crucial time in the history of the world, might jeopardize that effort and even jeopardize the nation. Third, the service jealousies and heartaches thus created would be a persistent root of evil for years to come.

For the changes that are needed in our defense structure to promote unity of planning, unity of procurement and unity of

operations need not be destructive of all that has gone before, need not be revolutionary in concept—much that we have built, we have built well—but they must be well conceived and well integrated. They must be tested—not against the touchstone of expediency which too often has been the yardstick of democratic institutions—but against the touchstone of efficiency. Above all, they must tend to reduce the power and influence of the Colonel " Blimps " and the narrow-minded zealots who have held too large sway in the council of our fate; they must promote the far-sighted and the broad-thinking and they *must* tend to create an organization that understands that defense in the modern world means more than ships and guns and planes, an organization that is dedicated to welding the structure of the nation into a viable shining weapon of democracy.

Such, in its broader outlines is the type of military organization that this nation needs. But before yielding the rostrum to Admiral Woodward, I should like more briefly to define military organization in the narrower sense, as applied to our land forces, and to comment tersely on several lacunae in the present tactical organization of our army.

First, it is quite obvious that we will commit a grave error if we interpret, as the French did, mass as strength and security. We are talking in numbers—astronomical numbers—of planes and men, but conscription does not necessarily mean efficiency, and unless planes are of the right types they are of little use in the mechanics of war. Conscription, indeed, may hamper adequate preparation unless it is wisely administered. Indeed, already the expansion of our land forces has been so great that it has been found necessary to disperse the trained strength of our several Regular Army divisions in order to provide cadres of trained men for new units, with the result that the country does not have today a single division trained and equipped for combat duty. It is evident, too, that for the next eighteen months we shall have not so much an army, as an aggregation of half-equipped, half-trained individual units. It would seem, therefore, that reasonable insurance against any emergencies of the immediate future would require priority concentration upon the equipping and training of three or four divisions — divisions which should be fully prepared by the spring, at the latest, for any sort of service. It is still not too late to accomplish this; it can be done but only with the

utmost effort; five-day forty-hour weeks in the factories and five-and-a-half-day weeks for soldiers in comfortable barracks will not turn the trick.

Just as we must concentrate upon mobile, finely trained forces, even of small size, rather than upon mass alone, so, too, our tactical thought must be revised to accommodate the lessons of modern war. Daring, a willingness to pay the price, speed, an understanding that time means victory must replace the plodding concepts of the past.

In the tactical organization of our infantry divisions mobility and flexibility must be stressed, but not at the expense of fighting power and endurance. Mobility is not achieved by gasoline alone; guns and men to hold a position once it is reached are as equally indispensable as tanks and trucks. The present tables of organization of our infantry divisions still show several glaring weaknesses when compared with the tables of organization of the German division. We are equipping our divisions with but half the number of anti-tank guns that the German divisions use—and at that the gun we are procuring is, in the opinion of some observers, too light —to meet successfully the challenge of the newest, heavily armored tanks. Our infantry division, again, unlike the German and the British, has no integral anti-aircraft defense; this is a lack that must be remedied. It may be true that the infantry is still the "queen of battles", but the American "doughboy" will never be able to prove it unless he has all the accomplices in weapons and support that modern science can give him.

These, then, are only a few of what—from the eyes of an interested layman—appear to be gaps in our defense structure. All of them deserve consideration; none of them can be ignored —"for want of a nail the battle was lost".

But we must remember that military organization is only a means to an end. It is the skeleton of a national effort, the framework of an army; it cannot have spirit or soul or meaning unless it is made viable by the free efforts of a free nation, unless its movements are nicely articulated by a sense of unity, unless its directive force springs from the intelligent will of the people. So clothed with living flesh it can be the instrument by which democracy triumphs.

Remarks by the Chairman

Chairman Mitchell: The third address is concerned with "Naval Strength" and will be delivered by Clark Howell Woodward, Rear Admiral of the United States Navy, Commandant of the Third Naval District, Brooklyn Navy Yard. Admiral Woodward!

NAVAL STRENGTH

CLARK HOWELL WOODWARD
Rear Admiral, United States Navy
Commandant of the Third Naval District, Brooklyn Navy Yard

IT is indeed a very great pleasure for me to join with you in the general discussion of "The Defense of the United States", and I feel highly honored at the invitation to address such a distinguished gathering. As requested, my particular subject will be "Naval Strength".

Two months ago the United States took its first steps on the long, difficult and tortuous road to becoming the world's greatest naval power—and for the most cogent reasons, the principal one of which is security in a world dominated by brute force.

That our Navy has been lagging in its defense program during the past seven years — as has been so frequently, so publicly and so erroneously charged in recent months—or that we have neglected to see the trend of international developments, is fully disproven by the facts. As of October 31—two weeks ago—137 naval vessels have been built and commissioned since 1933. This is 8.5 times as many as were built in the seven years preceding 1933. From a poor third among naval Powers in 1933 we have today—because of our subsequent construction, together with the attrition of war abroad—the greatest, most powerful and most effective Navy of any single nation on earth. When I say today I mean not tomorrow or next year, but today.

Furthermore, due to our frequent battle maneuvers and constant target practice, our fleet is maintained in "M-Day" readiness status at all times. We have the most air-minded Navy in the world and the efficiency of our naval air arm is unequaled.

Nevertheless, existing tragic world conditions have emphasized the indispensable advantage of naval strength and brought to us the stern realization that, for real security, we must be prepared to defend ourselves against a combination of

fleets of several other nations. A recent triple "coöperative" military pact signed by certain European and Asiatic totalitarian Powers definitely assures us that for the next ten years, at least, the United States will never be faced by a *single* belligerent nation in only *one* ocean. We are not prepared, at present—and alone—to meet a challenge from such an alliance.

In consequence we have decided to intensify our vital interest in the security not only of our continental limits, but also of the threatened Western Hemisphere and every other objective which it is our policy to defend. In the face of such a direct threat from such a hostile coalition, which we *must* be able to meet, we have begun to transform our defense effort into a full mobilization of the nation's resources and to speed up our armament program from present low gear into high gear.

Immediately after the World War we had the largest Navy in the world (built and building)—40 per cent greater than that of Great Britain, our nearest competitor. However, by the Washington and London treaties of 1922 and 1930, respectively, we lost 929,000 tons of fighting ships. Between 1922 and 1933 only sixteen units were built to replace obsolete vessels. Due to the intervening eleven years' holiday in naval construction our shipbuilding industry had become atrophied, and a large part of its machinery and equipment had become obsolete.

In 1933 sufficient funds from N.I.R.A. were set aside to start construction of 37 warships. The next year the Vinson-Trammell Act authorized building the Navy to treaty strength. In 1938 an increase of 20 per cent was authorized. This was followed early this year by another increase of 11 per cent, in tonnage, thus bringing the total allowed under-age strength of the Navy to 1,724,480 tons. In connection with this latter increment it is interesting to note that the Navy Department, after serious consideration, had urgently, but unsuccessfully, insisted on a 25 per cent increase.

Congress was working on the regular annual Army and Navy peace-time appropriations, when, in May, the European war took a sudden and more decisive turn, due to the invasion of certain weak and unprepared nations. Then followed the fall of France. These unexpected events—I mean unexpected as regards rapidity, ferocity and extent of accomplishment—were

the direct cause of our decision to take, without further delay, the necessary steps for giving to America a total security.

Prior to this time few people—aside from the Navy High Command—had seriously considered a very large expansion of our naval forces. Due to the European cataclysm and the increased activity in the Far Eastern struggle, however, the unanimous demand for a so-called "two-ocean" navy arose throughout the country almost overnight. This produced immediate action by Congress.

Not only were the regular annual appropriations for our armed forces doubled, as requested by the President—to the tune of approximately $5,000,000,000—but an additional bill, enacted in September, gave the Navy a 70 per cent increase in strength, or 200 combatant vessels aggregating 1,325,000 tons plus 2,400 planes at a total cost of $3,969,053,312.

This latest bill will add to our fleet the following combatant vessels: 7 super-dreadnaughts, 8 aircraft carriers, 27 cruisers, 115 destroyers and 43 submarines, and one additional auxiliary (repair ship).

This most gigantic shipbuilding program in all history will bring our total to 651 combatant vessels of 3,412,440 tons and 15,000 aircraft, the largest and most powerful navy in the world. When completed we will have 32 battleships, 18 aircraft carriers, 91 cruisers, 325 destroyers and 185 submarines, a balanced navy, capable of meeting any demand that may be made upon it, including a simultaneous attack in either or both oceans by a combination of belligerents.

It is of interest to note that contracts for the construction of all 200 ships recently authorized were made by the Navy Department on September 9, within two hours after the President signed the bill. Such a record has never been approached in this or any other country. It was made possible by the coöperation of Mr. Knudsen, Industrial Production Executive on the National Defense Advisory Commission, in conjunction with previous careful planning on the part of naval officials during the two months the bill was under consideration by Congress.

Conferences with representatives of private shipbuilding plants, regarding construction projects, had resulted in tentative agreements being made. These, negotiated on the basis

of proposals submitted by the shipbuilders, permitted contracts to be released definitely upon the bill's becoming law.

The vastness of this construction program puts a severe strain on the American shipbuilding industry, and calls for its expansion to the greatest capacity in history. Many new building ways, machine shops, electrical shops, etc., are being built, and every facility used in shipbuilding is being expanded to take care of this program.

Plant expansion (both at navy yards and private shipbuilding yards) and the job of completing this program will require the employment of many thousands of expert mechanics and many more thousands of unskilled laborers, working in two and three shifts for several years to come. Because of the necessary delays in gearing up industry, however, undoubtedly bottlenecks will develop, particularly in the manufacture of armor and in the air expansion program.

Anticipating a shortage in specialized shipbuilding trades as early as three years ago, the Navy Department established courses of training in both private plants and navy yards. In consequence, naval shore establishments today have nearly 10,000 men receiving this training. Since March 1938, civilian employment in naval shipbuilding has been increased from 65,000 to 131,000—more than doubled. An additional 100,000 will probably be employed at the peak of construction in 1943-44.

The building of these 200 ships has been distributed among twenty communities in fourteen states (Maine, New Hampshire, Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, Virginia, South Carolina, Alabama, Texas, Wisconsin, Washington and California). In addition many other cities throughout the entire country, wherever naval equipment is furnished, will be benefited by this new construction. The New York area has been awarded contracts for 69 vessels ranging in size from submarines to super-dreadnaughts, at a cost of nearly $500,000,000—a very substantial share of this program.

The process of transforming dollars into ships, guns, torpedoes, planes, etc., is one that will require several years to complete. While the bulk of this program is expected to be ready by 1944, the latest battleships authorized—all of which are to be built in government navy yards—will not be com-

pleted until a later date, delay being due to scarcity of ways for this type vessel.

The shipbuilding program has been speeded up considerably during the past six or eight months, the smaller type of combatant vessels—destroyers and submarines—coming off the ways at a faster rate than at any time in our peace-time history. Nevertheless more speeding up is necessary. To a large extent this is being accomplished by the cutting of red tape and cancellation of certain obstructive laws regarding wages, hours, profits, etc.

In addition to the vast building program, considerable necessary complementary legislation has been enacted by Congress, of which I shall mention only a few of the most important:

(1) Authority and initial appropriations for construction of the world's largest graving dry-dock in New York Harbor at a cost of $10,000,000 and also $7,500,000 for a dry-dock in the Panama Canal area capable of taking our largest battleships.

(2) Appropriation of $31,653,500 for the expansion of naval shore establishments.

(3) Authority to increase naval auxiliary strength about 100,000 tons, which is proportional to the combatant expansion program.

(4) Appropriation of $25,000,000 for procurement of patrol craft.

(5) Authority and initial appropriation to construct additional gun factories, and increase armor and projectile plants. In this connection our naval powder factory has more than trebled its output since June, and within another six months will be making twelve times as much powder as of one year ago.

(6) Authority for increased regular naval personnel in accordance with the needs of the service as new ships of the expanded fleet near completion. During the past year approximately 70,000 men have been added, making our total to date about 180,000 men. This number ultimately will be doubled. The personnel question, however, presents no problem to the Navy as voluntary

enlistments for six-year periods are quite sufficient. The character of men we select and the training we give them make them the finest sailors in the world. The Navy neither needs nor wants draftees or short-termers. In this connection expansion of Training Stations to handle new recruits is ahead of schedule.

(7) Increased appointments to Naval Academy and in addition authority to increase number and size of Naval ROTC units, both of which will furnish officer personnel. Augmented Naval Reserve units also add to both officer and enlisted personnel. In addition authority has been given to increase naval aviation pilots to a total of 16,000.

(8) Increase of United States Marine Corps strength—now more than 38,000—proportional to increase of Navy personnel, and the purchase of four vessels for conversion into troop and cargo transports. These are in addition to six World War destroyers which already have been converted into high speed transports for them.

Allow me to emphasize, at this point, that naval strength is not measured in fighting ships and personnel alone. It is essentially a composite of these two factors plus bases for the service of the fleet. Without these latter, in adequate number, the entire strategical situation of a maritime nation is altered.

Without these—because of the necessity of our ships carrying extra ammunition, food and other consumable supplies—either military characteristics (such as armor protection or guns) must be sacrificed or fuel capacity (upon which depends speed) must be reduced. Thus, it can be seen that lack of bases directly affects even the designs and characteristics of warships and auxiliaries, which, in turn, directly influence tactical concepts and battle plans.

Due principally to our past isolationist policy—encouraged by the belief that our two oceans were impregnable barriers—the United States has been slow in developing bases to parallel fleet expansion. However, since the beginning of the present war in Europe, we have awakened from our pipe dream of a fancied, but false, sense of security.

Any expansion of our fleet and naval air forces inevitably requires, and prudence dictates, not only the enlargement of present operating bases, but acquisition of additional adequate supporting shore facilities on both coasts for maintenance, repair and provisioning, in order to care for the entire strength of the new fleet operating as a unified force in either ocean.

This means harbors, moorings, dry-docks, shops, supply depots, hospitals and all the multitudinous shore developments needed by a modern navy. The Navy Department, for some time, has been making a comprehensive study of such additional shore facilities—which will probably cost not less than $750,000,000—and expansion in this line is being pressed rapidly.

The greater part of our fleet is now operating in the Pacific where our bases are few. In this connection, our westernmost stronghold—base at Pearl Harbor—is being made into the most formidable and impregnable bulwark of American defense in the Pacific area. At the same time strenuous efforts—short of fortifying them—are being made to strengthen the two main advance outposts at Midway and Guam, lying beyond and protecting the Hawaiian Islands. Necessary docks, storehouses and refueling stations are being built and channels dredged for both surface craft and submarines, while sites for flying fields and erection of bomb-proof hangars are being prepared for aircraft.

Naval air bases in the Pacific, according to report, are progressing at a rapid rate and all will be ready several months ahead of time. I refer specifically to those at Kaneohe (Hawaii), Palmyra and Johnson Islands, and to the three great air stations under construction in Alaska at Unalaska, Kodiak and Sitka. These, together with such joint American-Canadian defensive arrangements as may be made, complete our Pacific outposts and defense of our northwestern frontier.

As part of our eastern barrier, guarding approaches to the Panama Canal, we have our own base at Puerto Rico, which we are now heavily fortifying as our great Caribbean stronghold. This is in the center of those newly acquired bases in the rim of islands commanding all approaches into the Caribbean Sea from Florida to Trinidad.

These, together with the other ocean outposts recently obtained from Great Britain—by gift or 99-year lease—form a new defensive curtain of steel stretching 4,500 miles from New-

foundland on the north to British Guiana on the south, and screening America's east coast.

This far-flung outer line, when the sites have been developed, will effect an enormous strengthening of our strategic position. Because of our virtually unchallenged domination of the Atlantic-Caribbean area, it will be a tremendous factor in both our national and hemispheric defense.

The bases in Newfoundland and Bermuda should shield the vital North Atlantic sea lanes and our eastern seaboard. The northern outpost will be further protected by joint American-Canadian defensive arrangements in case Europe's war should come to this hemisphere. Meanwhile the bases further south will immediately supplement present American defense centers in guaranteeing additional protection to the Panama Canal, that great artery of communication between the two oceans and the key to our trade with the world.

Furthermore, the acquisition of these base-sites automatically alters the strategic picture in the Atlantic-Caribbean area. It makes possible an aggressive defense in this quarter by increasing the radius of action of both ships and aircraft, and will permit our forces to take the initiative, a lesson taught us by the present war which we mean to apply. It also will prevent surprise attacks from any large-scale enemy naval or air forces, which means that nothing short of an " all out " descent upon some part of this hemisphere would force withdrawal of our main fleet from the Pacific.

In other words, the possession of these bases is of triple value: first, by lessening the chances of attack against our shores; secondly, by providing outposts, with magnificent advantages of position, from which to challenge such attack, if and when it comes; and thirdly, by permitting us to take more deliberate action with regard to the use of our main fleet, now in Hawaiian waters.

To round out this series it is desirable, though not necessary, to obtain other naval and air bases on northern South America in order to link Trinidad to the Panama Canal. According to press reports diplomatic moves are being made to this end.

It has long been recognized, by naval and military men, that —as Admiral Mahan so convincingly showed in his writings— the effective use of American sea power (and air power) for defense of the Western Hemisphere largely depends upon and

would be greatly simplified by the possession of strong bases at sufficient distance from our shores to permit striking at a potential enemy before he reaches the coast and to prevent him from establishing his own bases of operation on our side of the Atlantic.

This is particularly true of the Caribbean area which is, as Mahan calls it, the " key to two oceans ", as it controls communications between them. It is also a protected central position from which our concentrated naval forces can strike at the flank of any invading force moving from Europe toward our eastern seaboard, or can interrupt communications of any European force which may have penetrated the South Atlantic. By the same token it permits passage of reinforcements from the Atlantic to the Pacific, should any attempted attack be made in the latter ocean.

The acquisition of bases within the American defense zone is one of the greatest defense strokes ever made in behalf of the protection of this country, increasing, as it does, our east coast security by at least 75 per cent. It also enormously strengthens our capacity for more adequate defense of the Western Hemisphere. Without them our security plans would have remained dangerously vulnerable.

The President did not exaggerate when he spoke of the exchange of fifty over-age World War destroyers for these bases as " epochal ", and " the most important action in the reinforcement of our national defense that has been taken since the Louisiana Purchase."

The more this bargain is studied the more its advantages and significance to both Great Britain and the United States are realized. Hanson Baldwin (special writer for *The New York Times* on naval and military subjects) referred to the exchange as " perhaps the most important chapter [of world history] of our time," while Secretary of the Navy Knox declared the deal to be " one of those rare cases in which both sides are happy." I may add facetiously that even our old horse-swapping friend " David Harum " would have approved it.

The fifty destroyers were vitally and immediately needed by Great Britain, for whom they will perform invaluable service. Nor will their loss to us weaken, in any way, our naval strength, as Admiral Stark, Chief of Naval Operations, has attested.

On the other hand the long-range value of the bargain is infinitely greater to America's protection. Our Atlantic seaboard, for a period of 99 years, is to be provided with adequate defensive safeguards extending from 700 to 1,000 miles to the eastward of our coast line, thus preventing any European intruder from entering our area. They will be ramparts very difficult to breach.

Many new harbors and ports formerly closed to us, in an area for stout defensive forces, are now open for all types of ships and planes for quick action. Even though time is required for their development, our ability to use them immediately for patrol plane anchorages and fuel depots materially eases our Atlantic defense problem. Using them as a series of stepping stones, bombers and the lesser ranged pursuit planes can be flown to any point where communications or other objectives are menaced.

That we are hastening in the establishment of these newly acquired bases for active service is evidenced by the fact that a Joint Army-Navy Board, headed by Rear Admiral Greenslade, has already visited each one—some twice—for preliminary study as to adequacy and development for support of the fleet. Preparations for construction are now well under way. The time for their development is not great.

Should we be able to obtain a base along the northeastern coast of South America—where the distance to the potentially threatening West African coast is shortest—and similarly be fortunate enough to secure additional bases in eastern equatorial Pacific waters—such as Galapagos and Cocos Islands—thus somewhat paralleling our Atlantic system, the American defense position, already strong, would be nearly impregnable to attack from either the Atlantic or Pacific. In the Pacific, where threats cry aloud, the present situation leaves much to be desired.

However, we cannot rely solely on defensive measures. The security of the United States now, as in the past, depends upon keeping the threat of conflict as far away as possible from the homeland. This is the lesson we have learned from both history and our own experience. It is a lesson we must never forget, particularly in these days when warfare has been stepped up to such a rapid pace. Should we attempt to defend our country only at our frontiers, as the pacifists and isolation-

ists demand, the battle ground automatically would be on our own territory. No greater nor more costly mistake could be made than this, for it would mean—as now in the case of England—devastation for our own people, whether we should win or lose.

Our armament must permit long-distance offense, as well as home defense, and in such strength as to destroy any foreign force, attempting to attack, long before it reaches our continental frontiers. One of Mahan's maxims which stands out with particular significance in this connection is: "The assumption of the defensive in war is ruin. War, once declared, must be waged aggressively, relentlessly. The enemy must not simply be fended off, but smitten down."

Our faith in the two bordering oceans as full protection against invasion is similar to that of the French in the Maginot Line. With the ever-increasing range of aircraft and the ability of submarines to cross the seas, the effectiveness of these once formidable barriers has been materially reduced. Those oceans will be impregnable again only when their approaches are defended by outpost bases from which to operate our ships of war and aircraft.

In conclusion, I wish to make a brief reference to our merchant marine—a very vital element in national defense and a powerful factor in the successful conduct of a war—which furnishes vessels for auxiliaries, without which we would be helpless, and a seafaring personnel on which to draw in an emergency. Tankers, tenders, supply vessels and transports are just as essential to the "fleet in being" as are cruisers, detroyers, submarines and mine-craft. And they must be fast enough to accompany the fleet.

Under the Maritime Commission the merchant marine is now being very efficiently and rapidly rehabilitated. Its long-range construction program, begun in the Spring of 1938 (to cost approximately $1,250,000,000), is for 500 ships in ten years, vessels being built so as to be transformed easily into naval auxiliaries in time of war, their sizes and speeds depending on the mission for which they are to be used.

In this connection, it may be of interest to know that the plans of all vessels built by the Maritime Commission must be checked by the Navy Department to see that the necessary characteristics for auxiliaries are included, and that the conversion can

be expeditiously consummated. This long-range program is nearly a year ahead of schedule at the present time.

Napoleon once said that "War is a business of position." With this in mind, and because of our geographical situation, victory in any war in which we may be engaged depends on our having command of the sea. Such command can never be obtained by mere defensive methods. In sea warfare the navy's rôle is emphatically and continuously the offensive.

To this end, our present peace-time naval expansion program, when completed—regarding both ships for our fleet (including necessary auxiliaries) and bases for servicing them—will have so vastly increased our naval strength that when and if war should come we will be well prepared to take and retain command of the sea, in its fullest meaning, against the fleet of any nation or combination of nations in either the Atlantic or Pacific, or in both oceans simultaneously.

Remarks

Chairman Mitchell: Our fourth address, on "Defense in the Air", was to have been made by Major General H. H. Arnold, Chief of the Army Corps and recently made Acting Deputy Chief of the General Staff. Unfortunately General Arnold is detained in Washington by his official duties. He has asked Colonel Robert C. Candee, on duty in the Office, Chief of the Air Corps, to address us in his stead. I have the pleasure of introducing Colonel Candee!

Colonel R. C. Candee: Mr. Mitchell, Fellow Students of Political Science: I would like to correct a misapprehension. This paper was not written by General Arnold. He is not responsible for any of the things that are contained in it. I would like to spare him that.

(Colonel Candee then read his formal paper.—Ed.)

DEFENSE IN THE AIR

ROBERT C. CANDEE
Chief of Intelligence Division, Office of the Chief of the Air Corps
War Department

ANY substitution in this program for General Arnold is most unsatisfactory for all of us, for I regard him as the foremost authority in the country on the subject of air defense. General Arnold asked me to express his regret at not being able to be here and to assure you that only the most urgent duty elsewhere has made it necessary for him to miss this meeting.

Before proceeding I should like to preface my remarks with the statement that the views presented are mine, and I am not expressing the views or opinions of the War Department.

I approach my subject this morning—"Defense in the Air"—with a keen realization of the widespread interest in it. The problem of national defense, already complicated by the great technical advances made in recent years in the weapons and equipment of the surface forces, has been greatly aggravated by the birth and development of air power. If the airplane were merely an additional weapon for either the Army or the Navy, and had thus created a problem within one service or the other, the solution would be simpler. But the fact is that the nature and characteristics of the airplane (its speed, range, ceiling and destructive power), all of which are growing by leaps and bounds, give to air forces a separate sphere of action in which they alone can operate, and at the same time these characteristics permit them to intervene in the operations of the surface forces.

Let us look for a moment at some of the operations of the past fifteen months to see what air forces can do both by themselves or with or against the land and sea forces.

The first thing the German Air Force did in the conquest of Poland was to protect German ground armies from air attack by destroying the Polish aircraft. The 900 airplanes of Poland were struck on the airdromes and in the air by three times that

number of superior German planes and within two days Polish air resistance ceased. This freed the fast-moving German columns to proceed with their pincer-like scheme, driving from three directions toward Warsaw, and surrounding the Polish Army in Western Poland while the German Air Force systematically bombed the rail and road centers and the bases in the rear, upon which Polish ground troops were dependent for supply. All was proceeding well with the German strategy until the Polish armies, moving eastward from Posen, threatened to break through the iron ring which the invaders had drawn around them. The Polish forces in that area were a formidable group. They were well trained, well supplied, well led and imbued with a spirit of determination in the defense of their homeland, which gave them added strength. The Germans on the other hand had become over-extended and were tired, and slowed down from the long and rapid advances made in the preceding two weeks. The Polish armies were on the west bank of the Bzura River ready to cross over the remaining bridges and escape the trap, when the German High Command called on its Air Force to transfer its attacks from strategic objectives in the rear and concentrate on the Polish van. Within a few hours the bridges over the Bzura were destroyed and the heads of the Polish columns were bombed into confusion. This gave German reinforcements time to come us, and the jaws of the trap closed. The Air Force returned to its distant attacks on Warsaw. The end of the Polish war was in sight.

A short breathing spell, and then came the invasion of Norway. Air fighting in this campaign was not extensive, but the German Air Force played a major rôle in the show. Norway's small Army and Air Force would be no match for Germany's legions if the latter could be landed on Norway's shores. But this required the operation of many transports and other vessels through the Kattegat and across the Skagerrak. Would England, Mistress of the Seas, permit it? Was not this the long awaited opportunity for invincible British sea power to show its might and stop this further act of Nazi aggression? An expectant western world waited in vain for the British fleet to sail into the narrow waters that separated Norway from the Germans, and to cut the latter's sea communications. A few light forces did become engaged, but

the major British units remained aloof and the German invasion progressed according to plan. There may be other reasons, but it is my personal belief that the Admiralty decided not to risk losing valuable vessels by sending them within easy range of the mighty Nazi Air Force. This restraint of British sea power by the German Air Force is, to my mind, the major lesson in this case and far outweighs the other useful services performed in this campaign.

The next chapter deals with the novel and ingenious use made of the German Air Force in the conquest of Holland. Here was accomplished that which the consensus of military opinion up to that time had agreed was impossible, namely, the capture and holding of ground by an air force. The heart of Holland, including the four great cities of Rotterdam, Utrecht, Amsterdam and the Hague, was strongly defended by the stout Dutch Army behind broad inundations on the east and south. At dawn on May 10 two thousand parachutists dropped from the skies, seized the bridges and nearby landing fields. By noon several thousand more air-infantry troops had been landed on the captured airdromes. This air-borne force held its position until the German ground forces a few days later marched up and across the bridges. The foot had been put in the door, and it could not be closed again. Here careful planning and brilliant execution by the Nazi Air Force, in coördination with the operations of the ground forces, served to gain one more tactical, strategic and political advantage whose consequences have been fatal to Holland and have vitally affected the subsequent operations in Belgium and France and against England.

The next example of air power to which I would like to invite your attention is the part played by the German Air Force in the break-through into France. The point selected was the historic vicinity of Sedan. The main strength of the Maginot Line did not cover this sector, although the defensive preparations of the French were strong. An attack on such a position in the World War would have been preceded by days of artillery preparation to break up the defensive organization and destroy the morale of the defenders. Such a preparation would have required immense quantities of artillery and a long time for its emplacement. But time was an important factor, so the German Air Force was used to blast the defensive zone. For ten hours Nazi bombers of all types swarmed over the area

and dropped their lethal loads. In order to make the air assault as strong as possible German planes flew from all parts of the Reich and some even came from as far as Norway. The desired effect was obtained, the line was broken, the invading horde plunged through and did not stop until it had taken the channel ports and driven the British Allies home across the channel. This operation is a splendid example of the flexibility of an air force in concentrating tremendous striking power on a vital point and in quickly changing the target of its blows, either in accordance with a pre-arranged plan or as required by unforeseen emergencies.

The cases I have mentioned heretofore have shown the power and versatility of air forces in attack, particularly in the absence of a strong resistance. Before leaving this phase of my subject, I should like to point out the defensive strength of air forces as illustrated in the present Battle of Britain. In the German attack on England the same potential destructive power is present. But the target is larger and tougher and there is present a defensive air force which did not exist in Poland, Norway, Holland or France. Here the quality and spirit of the British fighter squadrons are matched against quantities of Nazi bombers and personnel. The end is not yet but there is every reason to hope that with the advantage of fighting over their own territory and with increasing aid from America to overcome their tragic inferiority in numbers, the gallant British airmen may succeed in fighting off the Nazi attack. England is at Armageddon, and the unsurpassed service being rendered by the Royal Air Force is eloquently summed up by Prime Minister Churchill in these words: "Never in the field of human conflict was so much owed by so many to so few."

In carrying on its normal operations, of which I have just mentioned a few of the more important examples, we find that air power is a versatile force and performs a great many detailed functions for the friendly land and sea forces and strikes sledge-hammer blows against the enemy in an almost unlimited number of ways. In support of or coöperation with other services, air power first of all protects against enemy air attack by throwing defensive pursuit squadrons against hostile bombers. The defense of England against the Nazi air attack is the best example of this protection. The security of

a friendly battle line by fighters from a fleet's carriers is a similar protection. Enemy air power is opposed no less profitably or gallantly by friendly bombers that attack the hostile air force on its airdromes, in repair shops and in factories, and even through the raw materials which are required to maintain a steady flow of replacements.

In the field of operations against enemy objectives other than those pertaining directly to its aviation, a friendly air force joins in the infantry and artillery battle, as at Sedan; it paralyzes the supply and transportation services, as in Poland and in England; and it strikes at the very heart of the enemy nation, reducing its production of the sinews of war, destroying its commerce and shattering its morale, by seeking out those vital and precious possessions whose loss undermines the hostile will to resist. These and scores of other functions, services and duties devolve upon an air force because of its versatility, flexibility and strength.

Let us look for a moment at the elements of air power and see of what it is made. First, there are the combat squadrons which carry out the air fighting, drop the bombs, and make visual and photographic reconnaissances. These are supported by the transport squadrons that carry troops and supplies, and bring the wounded back for hospitalization. Next, these squadrons, which are all organized around the airplane as the nucleus, require airdromes and bases from which to operate and where the men and machines can go for rest and recuperation, and for the many maintenance activities on which all mechanized organizations are dependent. Behind these squadrons and their bases there must be a great industrial machine for producing personnel, airplanes and supplies to replace the losses of planes and crews and to replenish the vast stocks of munitions. An air force rises from the ground only with the smoke rising from countless chimneys. The military services operate their own schools for the training of flying personnel of all categories, but in addition there must be a substantial aviation industry, including airlines and factories, to train the numerous specialized personnel required for the administrative, repair and supply work of an air force. The average number of men and officers needed in an air force has been growing steadily and is now between fifteen and twenty. This, of course, does

not include the vast number of workers who are required in industry beyond the military service.

It might appear that all this discussion of the ability of air forces to attack and destroy is a departure from the assigned subject of "*Defense* in the Air", but in reality attack and defense are only two aspects of the same thing. It has been wisely said that the best defense is a vigorous offense. That football team which never carries the ball will never score a touchdown against an aggressive opponent. The spirit of the offensive has yielded positive victory from time immemorial, but defense in the long run can only spell defeat.

An air force is by nature best adapted to offensive action. It cannot fight behind shelter. It seems as though the developments and weapons of warfare, from primitive to modern days, conduce to offensive rather than defensive action. Our aboriginal ancestors depended on flight or on the shelter of a friendly tree for safety against the clubs or short-range missiles of their enemies. But with the advance of civilization, human intelligence and ingenuity have created new weapons of ever-increasing range and destructive power, and the old defensive means have become less effective, until we find in an offensive air force of today the only real defense against attack from the air. This is true whether the means of attack be shooting down enemy planes in aerial combat or in bombing hostile aircraft on their bases and in their factories in the homeland. Therefore, in acquiring a realistic conception of the rôle of the air power in the defense of the United States we must make a virtue of necessity and expect to take offensive action. This is not to say that an aggressive attitude toward friendly or non-belligerent nations in time of peace should be adopted, but it does mean that when all resort to reason and diplomacy has failed and our Air Force has been called into fatal play, it must be prepared to seize the initiative and to attack. An illuminating comparison of the relative merits of offense and defense on a national scale is to be found in the aggressive spirit that animated the French armies in 1914, and the passive attitude which dominated their action in 1940. General Foch, writing to his superior, Marshal Joffre, during the Battle of the Marne in 1914, expressed the spirit which led to victory: "My right has been rolled up. My left has been driven back. My center has been smashed. I have ordered an advance from all

directions." The tragic result of the failure of the French in 1940 to follow the teachings of the victorious Allies in the First World War is shown in prostrate France today, which in the recent struggle subordinated offensive Air Power to defensive Land Might, and vainly entrusted her security to a line of concrete and steel. She yielded the initiative to the enemy and immobilized in the Maginot Line men and munitions that should have been available for attack and counter attack against an aggressive foe.

I have discussed briefly some of the elements and attributes of air power, and some of the methods of its use. There is one other consideration on which I must comment, a factor not at all peculiar to air power but applicable to the conduct of all military affairs and essential to earliest victory. I refer to the necessity for coördination and coöperation between air power and sea and land power. That air power is a separate entity there can be no doubt. The problem of its direction and control has been solved by various nations, each according to its individual needs or the views of its leaders. The United States, Russia and Japan have divided the agencies of their air power between the older services—the Army and the Navy. On the other hand England, Germany, France and Italy have each created a new air arm for the development and application of this new force.

But the form of organization is not a criterion or a guarantee of success. The German Air Force presents the greatest demonstration of air power in the world, while the French Air Army was too weak to make even a pretense of strength when France was attacked. The assurance of adequate development of air power lies not in the form but in the spirit of its organization. A coöperative attitude must supplant the unthinking partisanship that has guided so many citizens in the past. For a generation the concept of the Navy as America's first line of defense has been a byword, so that there are those who believe our complete national security can be obtained by building an invincible armada to patrol our shores. But the naval officers who have studied the history of war do not believe this.

Then there are the zealots who, in an ecstasy of patriotic fervor, still think that, should America really be threatened by a foreign foe, an army of a million men would spring to arms overnight and could alone carry the Stars and Stripes to a

glorious victory anywhere in the world. Such people in their enthusiasm invariably neglect to provide the arms for the million men to spring to. Nor do they consider how an army of a million men can fight on foreign soil, where wars should be fought, without the assistance of a formidable navy.

Latest in the parade of panaceas is air power. For twenty years some of its most radical advocates have been predicting its over-all supremacy in war. Their prophecies have been and are now being put to the test. All the horrors they foretold: the slaughter of troops on the batlefield, the sinking of men-of-war and commercial ships at sea, and the scourge of non-combatant populations at home—all these punishments have been visited upon the victims of air power; but complete victory has not yet crowned the efforts of its greatest exponent—Germany. It is not my thought to belittle this youngest member of the armed services (the one to which I belong). Its effect in battle on both land and sea has been terrific and its influence on campaigns, diplomatic as well as military, has been tremendous. But while I firmly believe that air power is more than an adjunct, auxiliary or subordinate of land and sea power, I am equally certain that it will not supplant either one.

It is unfortunate that air power has been regarded by some as the enemy or competitor of sea and land power when in reality it is the complement and partner of the older forces of military might. That defense in the air is a necessity for national survival is axiomatic. Our Secretary of War, Mr. Stimson, testifying before a Congressional Committee in August 1940, said:

> Air Power today has decided the fate of nations. Germany with her powerful air armada has vanquished one people after another. On the ground, large armies had been mobilized to resist her, but each time it was that additional power in the air that decided the fate of each individual nation.

The mandate has been given to our Army and Navy to create an adequate air defense for the nation, and the plans and means are provided. With the enthusiastic and coöperative support of the services, the government and the public we cannot fail to give America an invincible defense in the air.

Remarks

Chairman Mitchell: The concluding address, which deals with "Industrial and Scientific Research for National Defense", will be given by Frank B. Jewett, Chairman of the Board of the Bell Telephone Laboratories, Inc. Dr. Jewett!

Dr. Frank B. Jewett: Dr. Mitchell, Members of the Academy and Guests: Attempting to present, within a twenty-minute time limit, the problems relating to industrial and scientific research, which are fundamental in the national defense program, I found myself confronted by two questions: one as to subject matter, and the other as to the method of presentation. Obviously in so short a time one cannot give a complete picture of the research that intertwines through all the elements of the defense program. I have chosen to forget the detailed organization, which has been and is now being set up for the conduct of research in these two complementary sectors, and to give you what seems to me probably more interesting and more profitable, some of the basic factors which are involved. One would normally choose, particularly one who is last on the program, to speak extemporaneously, but with the twenty-minute time interval before me and the desire to be concise, I have chosen to reduce what I have to say to writing.

I am the more minded to do this because a number of years ago I happened to become acquainted with a remark of a very sprightly old lady, a lady who returned to her college, Rockford College in Rockford, Illinois, to celebrate, at the time of its ninetieth anniversary, her sixtieth anniversary as a graduate. She made some very worth-while remarks, I am told, in a very succinct fashion; and she prefaced her remarks by saying that in her girlhood she had often watched the efforts of blacksmiths and she had noticed that the longer the spoke, the greater the tire. (Laughter)

(Dr. Jewett's formal paper follows.)

INDUSTRIAL AND SCIENTIFIC RESEARCH FOR NATIONAL DEFENSE

FRANK B. JEWETT
Chairman of the Board, Bell Telephone Laboratories, Inc.

IT needs no deep or extended knowledge of science to appreciate that present-day organization for mass murder, which we call war, is primarily a national utilization of applied science on a stupendous scale and with a single definite objective. This is true whether the objective is one of offense to obtain a desired end or of defense designed to protect a situation or a way of life from aggression. Further, it requires but little thought to realize that in a world made small by applied science to the point where time and space have been substantially eliminated for both communication and transport, there is little choice of method left to the nation which would defend itself. What any potential enemy elects to do sets the minimum pattern to all others.

The World War twenty-five years ago brought the place of science and scientific research vividly into prominence and presaged its rôle in a total war such as the present conflict in Europe is turning out to be. The tragic mistakes in the use of scientific men in that conflict taught a lesson which the present contestants have not failed to heed. Whether we, who fortunately have not as yet been subjected to the fiery test, will be equally wise remains to be seen. If we do fail initially, at least it will not be for lack of example or evidence.

While history records a succession of revolutionary changes in the conduct of war through the advent of some new technical tool such as the crossbow or gunpowder, none have ever produced such a complete change in the relation of the whole population to the struggle as has the fruit of applied science since 1900. In a way the World War can be looked upon as an initial field trial of the new order, and the Spanish Revolution, Czechoslovakia, Poland, and the Japanese assault on China as further experiments with new tools in order to perfect them.

Nothing in all the history of warfare is more startling than the contrast between what is now going on in Europe and the sanguinary struggle of twenty-five years ago. In that fraction of a normal lifetime the stage of primary death and destruction has been turned from the combatant forces and loosed upon the entire civil population and their structures. Through science the relation in numbers of men involved in the armed forces to the implements of death they employ, and to their inherent destructiveness, has been completely changed. So, too, in large measure have the qualifications of the men needed to serve and operate these new implements. It no longer suffices that they be merely fine physical specimens who can survive until the time comes for them to tempt fate as cannon fodder in an unequal game of chance. As a matter of fact, if a choice had to be made between technical proficiency and perfection of body, the latter would lose in more than one instance, and the army's physical examination standards would undergo radical revision. In a very real sense the erstwhile civilian has become the principal combatant and the men in research laboratories among his high command.

When we speak of the problems of national defense, we do not, if we are honest with ourselves, shut our eyes to the fact that we may at any moment find ourselves dealing with problems of national offense. The two cannot in common sense be distinguished. What is true everywhere is doubly true in the domain of science since here we can never judge fully the adequacy of our defense mechanisms unless we have subjected them to the severest tests of offense we can create. These may be the use of what others have produced and we have improved on or they may be entirely new things which we have conceived to be even more destructive.

The problems of defense viewed in this sense which are presented to fundamental and applied science run the entire gamut from military implements employed directly in offense or defense back through all the services of supply. They involve new applications of known knowledge and the quest for new knowledge likely to be usable promptly; they involve the whole field of medicine and public health, of nutrition and epidemic diseases incident to the peculiar conditions engendered by war for combatant and civil populations alike.

Everything which seems stable in ordinary living becomes unstable. Essential raw materials may become unavailable and substitutes have to be produced at a moment's notice or new instrumentalities involving other materials developed. Always there is the possibility, despite all our own ingenuity and efforts, that an enemy with greater imagination or better luck may produce a new destructive tool which will threaten our defeat unless we are prepared through science to counter it effectively at once.

In no single instance that I can think of is the call to some branch of science likely to be absent. No twenty-minute discussion of the place of fundamental and applied or industrial research in the program of national defense can do more than hint at its manifold ramifications.

Before turning, in the time remaining, to a more concrete picture of the actual organization of science needed for the defense program, there are two points that should be made clear.

First, fundamental science has always been the source of the raw material of applied science. The imminent threat of war does not alter this basic relationship, it merely for the time being changes the emphasis of fundamental science research. Because of limitation in numbers of research men and facilities, it enhances the tempo of work in fields where new knowledge is most likely to be immediately usable and retards it in other fields. It does not change the fact that the university and technical school are still the places where new knowledge originates and where men are trained for industrial research. On the contrary, it enhances the importance of these institutions and the need for maintaining them at full efficiency since the demand for their human and material output is stepped up and industrial laboratories can do little to produce new knowledge or train men except as routine technicians.

Second, the astounding results which have been obtained in England and Germany under the dire necessity of a life and death struggle show how tremendously an art can be advanced in an incredibly short time when the whole available scientific power of a nation is marshaled on it—when the normal procedures of individual or small group undertakings are replaced by massed attack; when all the barriers of competition and pride of authorship are swept away and replaced by a high

coöperative endeavor and when the conventional peace-time yardstick of cost is relegated temporarily to the limbo of forgotten things. In science, during preparation for defense as in other sectors, cost measured in money is largely replaced by cost measured by elements of time and human life.

Coming now to the specific problems of fundamental and industrial science research and their organization in connection with the defense program, it will be best to consider them in the order just mentioned.

Whether urgent preparation for defense turns out to be of long or short duration, the virility of educational institutions in their primary functions of training research men and providing new knowledge must be maintained and a constant supply of intellectually competent young men must be assured them. This is demanded by the obvious needs both of the military establishments and of defense laboratories for trained research men. National safety demands that operation of selective service or other military requirements for men be not permitted to jeopardize a continuous supply of suitable men to the universities for advanced training and through them to the industrial laboratories. The danger lies in lack of real understanding on the part of laymen and military men alike as to how completely the success or failure of modern total war is involved in scientific research.

If we were sure that the defense program would be of short duration and an impending war would be ended promptly in a blitzkrieg, the wise thing doubtless would be to forego fundamental research entirely and utilize our entire national research personnel in the industrial field, using that term broadly. This would insure maximum utilization of existing knowledge in the shortest possible time and would not waste effort in the acquisition of new knowledge which in the nature of things requires a long time to be made available in practical form on a large scale.

This appears in part to have been the philosophy of the Germans when they transferred many of their productive fundamental science-research men to industrial research. They thereby reduced the flow of new knowledge and crippled their ability properly to train A-1 research investigators. Against this they undoubtedly accelerated military preparations based on existing knowledge and the training of large numbers of

men competent to develop that knowledge if given intensive specialized training.

Despite the fact that the time interval between the discovery of a really new piece of scientific information and its final appearance in large quantity applied science form is necessarily long, it seems clear that so far as fundamental science research is concerned *we* cannot accept a blitzkrieg philosophy. Our aims, our problems and our situation all counsel the reverse.

Certain branches of science may offer small promise of producing new knowledge of a kind to be usable in a defense program even if long continued. This does not mean, however, that men who have specialized in those fields are necessarily candidates merely for non-specialized or purely military assignments. Most men who have real research capacity and who are thoroughly trained in the scientific method of attack can transfer their productive effort quite readily to other related fields of investigation. They do not have to learn method or acquaint themselves with the use of research tools but merely with a modest body of facts. Evidence of this is to be found in the rapidity with which research men from both the fundamental and applied science sectors become proficient producers in fields with which they are essentially unacquainted.

Turn now to the industrial research field in relation to national defense.

Here, despite its far greater size, as to both number of units and research men available, the existing peace-time set-up presents a simpler picture for immediate contribution to an enlarged defense than does that of the universities. Its problems are more specific and concrete and are not in general involved in the long-time intervals which are inherent in the training act or in the blasting out of increments of new knowledge—intervals which cannot be shortened appreciably by the expedient of " putting more men on the job ".

Assured of a continuous supply of newly trained research men and guaranteed reasonably against disintegration of research teams by subtraction of key men, the existing industrial research groups if properly used should be able to handle their part of any defense program the nation is called on to undertake. They may have to postpone some normal developments they would otherwise undertake. This may mean no real hardship, however, since in many cases the results of such work

could not be commercialized in the face of an intense defense program.

In making the foregoing statement I wish to emphasize the phrase " subtraction of key men ". Industrial research laboratories are essentially coöperative group undertakings in which the elements of a complex problem are segregated for mass attack, each by a specialist in his own field. The efficiency of the team is much more than the sum of the individual efficiencies and increases in proportion as the members are accustomed to working together. It can be seriously reduced or even destroyed by the subtraction of key men.

One of the commonest tendencies when new research problems arise in times of stress like those of national defense is to set up a new agency which can be staffed only by drawing men from their existing environments. It is frequently the most expensive and least efficient for the nation because it disrupts existing teams, brings men not accustomed to working together into association, and requires organization of an entirely new set of auxiliary machinery.

In the interests of national defense it is a tendency which should be resisted in the research field, and new organizations should be created only when it is clear they are the best way of doing the job.

In the main the type of research undertaken directly by government in the laboratories of the military establishment is a form of industrial research. It differs from the latter only in that it frequently involves factors which are so purely of a military character that they do not normally appear in problems of a civilian character. Much of this work can be and is done in industrial laboratories under contract. In times like the present a vast amount of it is so done. Generally speaking, except for a limited amount of things purely military in character, the things of science required in national defense are adaptations of civil applied science.

Wherever done, however, industrial research requires a large number of highly skilled research scientists and engineers working in coöperative groups and provided with a vast amount of special research equipment. None of it can accomplish more than is in the possibilities of the knowledge developed by fundamental science research. All of it can be improved or

may be rendered essentially obsolete by new discoveries in fundamental science.

Usually when one thinks of science in connection with defense, it is to think primarily of the gadgetry of battle. Nothing could be further from the truth. Science, whether fundamental or applied, pervades and dominates every sector of human activity touched by defense.

The problems of medicine and public health are staggering. Vast numbers of men concentrated together in unaccustomed conditions present an endless array of health conditions quite aside from the horrors of the battlefield. So, too, do the dislocated conditions of civil life under the cloud of total war. Nutrition, the forced growing of substitute crops, the problems of strategic materials, and an innumerable host of other things are all in the last analysis problems of science—fundamental and applied. To be handled successfully all demand that the full scientific ability of the nation be used efficiently.

In the years since the close of the World War, much has happened to hearten one for the task ahead. Fundamental science has expanded greatly, and universities and technical schools have improved enormously both in their ability to train men and in their capacity to produce new scientific knowledge.

The relatively few industrial laboratories of twenty-five years ago have grown to be numbered by the tens of hundreds and are found in every sector of industry. They are seasoned in their work, have back of them a record of things accomplished which generates confidence, and are staffed by men trained for the work they have to do rather than by men like me who had to grope in ignorance.

Government itself has gone forward a long way in its understanding and use of science. Twenty years of hard, quiet, unadvertised work of the Army Industrial College has given the military establishment a large corps of officers in commanding positions who have a real understanding of industry. The laboratories of the Army and Navy and of the civil departments are real laboratories and not largely testing and experimental stations.

On the understanding side the National Research Council, created by the National Academy of Sciences under authority of its congressional charter and a presidential executive order, has in two decades established lines of association which tie

all of the nation's scientific and technical societies into a common organism which makes it possible to mobilize quickly the best brains on any scientific problem of importance.

The National Advisory Committee for Aeronautics created and supported by government is a powerful research agency in the development of civil and military aeronautics.

The recent action of the Council of National Defense in creating the National Defense Research Committee and a similar body in the field of medicine, implementing them with large sums of money for research in connection with national defense, and giving them complete latitude of choice in the problems to be attacked, is a striking example of the altered attitude of government toward the place of fundamental and applied science in the problems of national importance.

If in these tense uncertain days we as a people fail to do a workmanlike job on the scientific side of national defense, it will not be because we lack sufficient human and material tools but rather because we lack the wisdom and will power to use them.

DISCUSSION: THE BASES OF AN AMERICAN DEFENSE POLICY—ARMED FORCES

CHAIRMAN MITCHELL: This address by Dr. Jewett completes the formal papers. It is the custom of the Academy of Political Science to have an informal discussion from the floor in speeches lasting not longer than five minutes. Today this discussion will have to be limited, I think, to not more than twenty minutes, inasmuch as we must clear the way for the afternoon session, which will begin in this room at two-fifteen, on "The Bases of an American Defense Policy—Utilization of Productive Energies".

If any member of the audience would like to initiate the discussion from the floor under the five-minute rule, he may come forward and give his name to the recording secretary.

DR. BEATRICE HYSLOP (New York City): I want to ask a question of the various military experts. In the Orient, at the present time, our chief potential antagonist is Japan. I would like to know to what extent nylon can be a substitute for silk in the expansion of our national defense, or does the expansion of national defense at the present moment mean increased imports of silk from Japan?

REAR ADMIRAL WOODWARD: I can answer that so far as the Navy is concerned. Nylon will not do, either for parachutes or for bags for powder. We need the silk.

MRS. ARANOW: In view of what the last speaker said, will there again be waste of ability, as there was in the last war? For instance, we heard of physicians and surgeons carrying stones and guns.

CHAIRMAN MITCHELL: Will there be a waste of ability in the allocation of highly skilled men in the performance of rather simple military duties? I do not know who could answer that question. (Laughter)

REAR ADMIRAL WOODWARD: I can answer only for the Navy. We need skilled men and they will not go to waste in the Navy. (Laughter)

DR. JEWETT: I think, Dr. Mitchell, that I might add one remark. Of course, there will be waste of ability. That goes without saying. I doubt, however, that there will be the kind of waste we faced in our ignorance at the time of the other war, certainly not the kind

that England and the combatant countries then faced. I feel that way because everybody seems to be alive, at the present time, to the necessity of avoiding that sort of thing.

You may be interested to know that, in my capacity as President of the National Academy of Sciences, I have received from Mr. Dykstra a request for advice which would be helpful to presidents of universities and heads of industrial laboratories in deciding whether to ask for deferment in connection with the Selective Service Act. This is evidence that Mr. Dykstra is concerned over the possibility of key people or technical people being taken into purely military services.

CHAIRMAN MITCHELL: Are there any other questions or remarks?

REAR ADMIRAL WOODWARD: I want to ask a question of Colonel Candee. The impression that I got from some of his remarks was that the Air Force had done a great deal of harm to the Navy. I want to know just exactly what that harm was.

COLONEL CANDEE: No, sir! Admiral Woodward, I think that the Air Corps, the air force, has been one of the greatest factors in the building up of the Navy. I used to ask some of my friends in the Naval War College when they were going to erect a statue to Billy Mitchell.

ADMIRAL WOODWARD: What was the answer?

COLONEL CANDEE: They did not have many answers. (Laughter) But I think that the creation of air power has probably been more important in building up naval power than any other factor. I think that the Navy has made more use of air power in this country than the Army has. I do not think that the Air Force has injured the Navy.

REAR ADMIRAL WOODWARD: I mean the British Navy.

COLONEL CANDEE: I did not mean to say that the air power had injured or damaged the British Navy.

REAR ADMIRAL WOODWARD: Just a moment. I do not want to get into a discussion. You mentioned the fact that the Air Force of Germany had done a great deal of harm to the British Navy. I want to know what it is, because we have not heard of it in the Navy.

COLONEL CANDEE: I do not recall making that remark. What I meant was that in the narrow waters of the operation against Nor-

way, air power seemed effectively to contest what has generally been called sea power.

REAR ADMIRAL WOODWARD: Have they ever sunk a battleship?

COLONEL CANDEE: You can answer that.

REAR ADMIRAL WOODWARD: Have they ever sunk a cruiser?

COLONEL CANDEE: You can answer that.

REAR ADMIRAL WOODWARD: I happen to know.

COLONEL CANDEE: I answer, "Yes."

REAR ADMIRAL WOODWARD: Your answer is wrong. (Laughter) Furthermore, they cannot sink a battleship.

COLONEL CANDEE: All right, sir.

REAR ADMIRAL WOODWARD: I also wanted to ask why it was that, with all the superiority the Germans had in the air, 335,000 soldiers were evacuated from Dunkirk, the small space of Dunkirk, after eight days of very hard and continuous strafing.

COLONEL CANDEE: I attribute that to the superiority of the British Air Force in that theater.

REAR ADMIRAL WOODWARD: Could not the Germans get there in eight days?

COLONEL CANDEE: The Germans had been pretty well employed, and their bases were a long way from the place where the evacuation took place.

REAR ADMIRAL WOODWARD: They are supposed to have had ten times as many airships.

COLONEL CANDEE: Yes, sir; but they must have bases, as you pointed out in the case of the naval forces. The Germans did not have bases in that area at that time.

REAR ADMIRAL WOODWARD: Is it not true that the British Navy always has had an air force separate from the R.A.F.? They have their own air force not connected in any way with the Royal Air Force.

COLONEL CANDEE: I think that you are right.

MISS MARIE S. KLOOZ: I would like to ask some of the speakers a question. At least four of them have implied, if not stated, that offense is our best defense. Well, if that is so, what definite offensive steps would they suggest that we take at present, that is, in aid to Britain?

CHAIRMAN MITCHELL: May I ask whether any one of the speakers cares to answer that? (Laughter) I will ask Professor Earle to try.

REAR ADMIRAL WOODWARD: That is a political question.

PROFESSOR EARLE: I think I am "it", because this is fundamentally a political question. I had hoped to evade answering a question of this kind, but I think the fact is that the course of the operations in the North Atlantic and the English Channel shows that the situation of Britain is a very serious situation, a much more serious situation than the British are prepared to admit themselves, or than most of us like to admit. The Austrians used to say of things in general that the situation is hopeless, not serious. I should say that the British situation is serious but not hopeless.

A previous speaker, Mr. Baldwin, said, I think quite correctly, that whether Britain can hold out or not with aid on the scale that we are giving her now, she cannot hope to win without the active military intervention of the United States. To that theory I would completely subscribe, not merely for military reasons, but for psychological reasons. That is to say, no people, no armed forces will stand up month after month, or perhaps year after year, under the sort of punishment that the British are now receiving, unless they can hope ultimately to take the initiative and win the war. In my judgment, the ability of Britain to take the initiative depends entirely upon the willingness of the United States to give armed assistance to Britain, which means, of course, military intervention by the United States. Therefore, the question which we have to face, and face fairly soon, is whether we are prepared to see Britain go under, or whether we are prepared to intervene in the war. It is going to be a difficult question for the American people to face and to answer, partly because we have allowed ourselves to be anesthetized by slogans and phrases and clichés which have been obscuring the issues.

At the immediate moment, of course, it is necessary to mobilize all possible productive energies of the American people in order to provide aircraft, ships, medical supplies, technical assistance to Great Britain. But ultimately we are going to have to face the issue of whether the phrase "short of war" means anything, and, if it means anything, whether it means what we think it means.

It is my judgment, reluctantly arrived at, that sooner or later, in our own interests, we should and will intervene in the war on the side of Great Britain. That is entirely aside from the question of what we would like to do if circumstances were different than they are. A case might be made for intervention on the ground that Britain is worth saving for the things she has stood for in the history of human civilization and for the sake of the things she stands for now. But the debate can be conducted entirely on the plane whether the security of the United States does not require the defeat of Germany; and if measures short of war fail, I am prepared with the utmost regret to say that we have to take measures which include war. That is an answer which is not going to be popular, but it is the one which I think we are going to have to make. And I may add that I believe the entry of the United States into the war would have such far-reaching military, economic, psychological and moral results that the entire international situation would change to our advantage and to the acute discomfort of the Axis Powers.

MR. NOEL BEDDOW (Birmingham, Ala.): I have been very much interested in these discussions, but I am interested in knowing just what the gentleman means by "short of war". It seems to me, from what we read in the papers (and we cannot get everything, perhaps, that we should from the papers), that we have been led to believe that the airplane, in some circumstances, has punished severely those immense floating fortresses of Great Britain. I do not know whether any of them have been sent to the bottom or not, but apparently the English are keeping them hidden out. That may be true, I do not know.

This is a mechanical war; it is a mechanized war. I believe that practically all of us in the United States, with the exception, perhaps, of a few of these fascists, usually people of German origin, are in favor of helping Great Britain; but I know personally that we have idle factories today. Some of our great machine shops are not running more than two or three days a week. Now we are anxious to help in every way possible. I think that out of this meeting, or meetings such as this, there will come a source of information valuable to the American people in showing them how and when to help.

CHAIRMAN MITCHELL: Is there any member of the galaxy on the platform here who will define the phrase "short of war" that troubles Mr. Beddow?

PROFESSOR EARLE: I think perhaps the remark was directed at me. I should say I would not want to sponsor the phrase, short

of war, because I think that it is virtually meaningless. It is a phrase impossible to define, because it is impossible to draw a line between peace and war, as I said in my original remarks. I think the phrase is an anesthetic that has been applied to our intelligence and our capacity to judge the situation now facing us. I should like very much to see it dropped for purposes of deciding the policy of the United States.

It may well be that we shall decide to stay out of the war. There is an excellent case to be made for staying out of it, even at the cost of allowing Britain to go under. But there is an impelling case for intervention. The discussion should be conducted, however, only in rational terms and after the elimination of slogans which have become virtually devoid of meaning.

REAR ADMIRAL WOODWARD: There is one other part of that question, which I have been asked to answer. Why have the battleships been kept out? The battleships, by their very existence, have made active participation unnecessary, because the Germans have no fleet. What ships they have are tied up in the harbors, except one or two commerce raiders which are out. But the battleships are not necessary on the high seas. They are doing their legitimate work in the ports with their potential strength, which the Germans cannot combat.

As far as the aircraft are concerned, they have done no severe damage to battleships or armored cruisers. They have sunk a few torpedo boats and done some damage to the upper works, but the decks of battleships are constructed to resist 16-inch armor-piercing shells and therefore are automatically protected against any bomb that is used today, or that will be used in the near future.

So the battleships are not worried. Do not misunderstand me; we do think that the air arm is a very efficient and very necessary adjunct, but it is only an adjunct to the Navy, and it can be nothing else. Airships can never win a war; they can never win a battle. They can help and go out to protect the Army, or be an advance guard for the Navy; but they can never win a war or win a battle. Their very nature prevents that. They cannot go out in storms. They cannot go out in fog. They cannot go out in the night and do any damage to a fleet that is maneuvering without lights, as we always do at night. They cannot even find us.

Now, as far as the air force is concerned, it is an adjunct to the Navy. We do not want it to stand as a separate air force. The British have had it that way, and after twelve years of hard struggle, they got it back from the politicians and put it back into the Navy. That is all that has happened as far as the British Air Force is concerned.

As far as the German Air Force is concerned, it is practically a part of the Army, because they have no Navy. As far as the British Royal Air Force is concerned, it is practically a coördinating arm of the Army, because their Navy does not need them. The Navy has got its own.

As far as Italy is concerned, what has it done with all this vast superiority of ships that it has in the air? The Italians have done nothing. They have sunk no ships of any material value to the British Navy. They still have not captured Suez. The British are still in command of the Mediterranean. What has the air force done with all this vaunted strength? That is all I can say about that. (Laughter)

MR. LIN LIN: I was of the impression that the Japanese Navy's striking power had been tied down because of its war in China, because some four million men were bogged down in the Chinese battlefield.

REAR ADMIRAL WOODWARD: I did not quite get the last part of the question.

MR. LIN: To what extent is the Japanese naval striking power limited or impaired by the fact that the Japanese Army has been bogged down in China for the last three and one-half years?

REAR ADMIRAL WOODWARD: That does not affect the Japanese Navy very much. All the Japanese have to do is to transport their troops, with their lines of communication kept open. They have no opponents. The Chinese have no Navy to fight them off, so they are really not restricted at all.

DR. JEWETT: I think that he means to what extent is the necessity for protecting that line of communication a retardation of their striking power against another enemy.

MR. LIN: Yes, striking power; let's say it is a striking power to the Dutch East Indies or to other parts.

REAR ADMIRAL WOODWARD: If the Japanese had another opponent in the Far East, which up to the present moment they do not have, they would have to use part of their Navy to protect that line of communication. That is one of the things that they are finding in their shore fights, that it takes almost as many men to protect their line of communication as it does to provide the fighting line. By the same token it would take a large number of ships to protect that line of communication if they had an opponent.

Mr. Nicholas Cameron: Professor Earle referred to the psychology of the English people under the continuous beating that they are taking as one reason why we might eventually be drawn into war. I think that he is right on that, but I would like to ask him what he thinks of the psychology that is developing and the economic damage that is being done in the Axis territory as a result of the work of the Royal Air Force.

Professor Earle: I am sorry to say that that is a question which I am unable to answer, except from collateral rather than direct evidence. The German Air Force is able to operate from bases on French, Belgian and Dutch soil within twenty-five to fifty miles of British territory Therefore, German planes can carry a relatively heavy load of bombs, or they can even use fighter planes for the purpose of dropping thousands of light bombs. The British Air Force, on the other hand, operating against targets four hundred to six hundred miles, and in some cases as much as a thousand miles, away from their bases, must of necessity be restricted in the volume and weight of bombs that they can carry against their targets. That there has been damage to the German productive capacity, I think there is little doubt; but that it has been on anything like the scale of the damage to Britain is of even greater doubt. There is, of course, very little objective evidence on that point and, therefore, one cannot give anything like a definitive answer. The supply to the British of United States naval and army bombers, which are constructed for long-range bombing, might materially alter the situation.

Chairman Mitchell: I shall be obliged to adjourn the meeting in three minutes.

Miss S. Y. Wang: My question is directed to Admiral Woodward. If Japan should succeed in making a deal with Russia and, therefore, strike southward, what stand do you think that this country should take? And if you gave an—

Rear Admiral Woodward: Don't finish the question, because I cannot answer it. (Laughter)

Miss Wang: What is your personal attitude?

Rear Admiral Woodward: I cannot give you any personal opinion on that subject. I am sorry.

Miss Wang: Maybe someone else would like to answer that.

Chairman Mitchell: I think that we had better pass that up.

MR. WOODS: I should like to ask Mr. Baldwin his impression of whether or not the fleet and all their accessory vessels can operate close to modern air force bases on land.

MR. BALDWIN: I am sort of between the devil and the deep blue sea, I think. (Laughter) I tend to disagree to some extent with Admiral Woodward. I feel that air power has made a very definite change in the tactics and strategy of sea power as well as of land power. I do not think that a wise naval commander would take his fleet into extremely narrow waters within easy range of a strong air force. I think that it could be done, and has been done in this war, as obviously the British Mediterranean fleet has been taken within ninety miles of Sicily and close to the Italian shores, as the Admiral could have pointed out. I question whether the results would have been the same if that had been the German Air Force instead of the Italian Air Force.

There is no doubt, I think, that air power has definitely influenced both the strategy and tactics of land and naval war. I think that it is a great mistake, however, to extol air power, as Colonel Candee pointed out, at the expense of the other two services. I think that all three must combine to be a fighting team. We cannot dispense with any of them.

MR. H. SCHERBACK: May I ask whether the problems of national and international defense have been classified and numbered, in the air force and in every other field, so that men who think that they can cope with them from specific experience may be assigned to their particular fields of competence?

CHAIRMAN MITCHELL: Perhaps I had better refer that question to Dr. Jewett.

DR. JEWETT: I think a fair answer is in the making, because several enumerations have already been taken, and at the moment under the auspices of the National Resources Planning Board there is a vast census of scientific and technical personnel being made with the assistance of all of the technical and scientific societies and the agency of the Civil Service Commission. It is a vast undertaking, which is designed to make available for immediate use the full information with regard to this personnel for the purposes of proper assignment.

CHAIRMAN MITCHELL: Let me express the warm thanks of the Academy of Political Science to our five speakers and declare the morning session adjourned.

PART II

THE BASES OF AN AMERICAN DEFENSE POLICY —UTILIZATION OF PRODUCTIVE ENERGIES

INTRODUCTION *

LEO WOLMAN, *Presiding*
Professor of Economics, Columbia University
Trustee of The Academy of Political Science

THE session this morning dealt with the political and military phases of the American defense program.

The speakers of this afternoon will consider the economic problems which this program will inevitably create. It has been said that contemporary total war is essentially a conflict between industrial or economic systems. The experience of Europe has already demonstrated how dominant a part in the adequate provision of materials, as well as in the successful conduct of war, the effective organization of production has played.

In this country, where we stand at the threshold of the most extensive military undertaking of our history, we are faced with issues of economic policy that bear not alone upon our capacity to produce but also upon the course which American political and economic life will take in the future. The way we handle these issues will determine the outlook for American democracy, no less than the effectiveness of our measures of defense.

Among these issues, that of fiscal policy—how to raise the huge outlays required by our defense program, while at the same time we protect the diverse interests of the country from unwise taxation and the consequences of inflation—is the most difficult and subtle of our problems.

We are fortunate to be able to open our program this afternoon with so experienced and wise a student of this whole question. I take pleasure in introducing the former Under Secretary of the Treasury, Roswell Magill, Professor of Law at Columbia University!

* Opening remarks at the Second Session of the Annual Meeting.

FINANCING DEFENSE

ROSWELL MAGILL
Professor of Law, Columbia University
Former Under Secretary of the Treasury

MY discussion of the problem of financing national defense will suffer from two disabilities, one of which my audience may share, one of which is personal to me. As a practical matter, the methods which must be employed to finance the federal government for the next year or two are reasonably evident. Thereafter, however, we enter an autumnal haze of speculation, as to both receipts and expenditures, in which all figures are indistinct. An even harder problem is to settle upon a philosophy by which proposed fiscal action may be judged. Three years ago, the Secretary of the Treasury gave a rather clear statement to this Academy of his philosophy as to the peace-time budget.[1] It is a much more difficult matter today to outline with assurance and definiteness the principles which should govern the financing of a defense budget. We cannot rely wholly upon our experience in 1917-18, for fiscal conditions are now quite different; nor can we rely wholly upon propositions which we regard as fundamental in times of peace. Fiscal problems now are more complicated as well as more numerous, and the solutions employed will affect very seriously not only our individual pocketbooks—that is perhaps least important—but the very kind of life we may lead, what we may buy, what we may do, and what our children may look forward to after us. Unfortunately, no one of us is well enough equipped to formulate a complete program. The best each of us can hope to do is to indicate some of the considerations which his own specialized study leads him to believe must be taken into account. The executive, whether an individual or a commission, must then endeavor to coördinate many particular recommendations into a single program for action.

[1] "Federal Spending and the Federal Budget", in PROCEEDINGS OF THE ACADEMY OF POLITICAL SCIENCE, vol. XVII, No. 4, January 1938, pp. 128-136.

My own disability is that I am a lawyer, not an economist; and a lawyer is not the best Moses to lead us out of a fiscal wilderness.

1. We must first outline the dimensions of the problem. The budget for 1940-41, as originally proposed last January, anticipated a deficit of $2,176 millions, assuming that $700 millions could be recovered from government corporations. The eleventh consecutive year of deficit financing was thus inaugurated. During the summer and early fall, one proposal for additional defense expenditures followed hard upon the heels of another, until the total appropriations and authorizations for the Army and Navy now amount to over $17 billions. The greater part of this amount will not be spent during this fiscal year, but it is now estimated that the gap between receipts and expenditures for the fiscal year ending June 30, 1941 will be about $6 billions. In other words, we will pay as we go to the extent of about 50 per cent of the expenditures of the federal government. An idea of the size of this deficit may be obtained from the fact that it is larger than the total ordinary receipts of the federal government for any past fiscal year save 1920 and 1938. No one can tell now what the budgetary picture will be for 1941-42, since the volume of both receipts and expenditures is largely uncertain. Nevertheless, it seems clear that the volume of cash outlays from the present authorization for defense will increase, not diminish; the tax receipts and national income will also increase, but cannot be expected to bridge the gap between receipts and expenditures; and hence that the 1941-42 budget, in the absence of new taxes, will show a deficit of perhaps $6 billions also.

During the past seven years, the federal debt has increased nearly $22 billions. During the same period, the federal government collected nearly $34 billions in various kinds of taxes. Here are the two main sources of funds to meet the authorized defense expenditures. The question is not which one will be employed, for undoubtedly they will both be employed extensively. The questions are rather how much and what kinds of taxation we shall have to bear; and how much can and should we raise by the creation of new interest-bearing obligations? An important subsidiary question is the effect upon

our economy, both of greatly increased taxation and of greatly increased borrowing.

2. The first consideration, largely neglected in these days, is the possibility of reducing the ordinary, or what have become ordinary, expenses of government, and thereby of freeing revenues for defense expenditures. There are two bases for this procedure. In so far as production is increased by defense activities, there will be less need for made work, for public works, for unemployment relief. Moreover, we may well find it necessary, as England has, to shift some of our productive capacity from the works of peace to the works of war. It has well been said: "Where defense and peace-time programs clash, defense must come first." [2] At the very least, we need to reëxamine the whole federal budget, in the light of the immense new program of war expenditures. We can by no means assume that all peace-time expenditures, however justifiable they may have been, are justifiable now.

In 1937, just after a fiscal year in which the budget deficit was $3,252 millions, Secretary Morgenthau suggested to an audience of this Academy that steps should be taken to balance the budget, not by imposing additional taxation, but by decreasing expenditures. He suggested for possible cuts the appropriations for public highways, public works, unemployment relief and agriculture. The general public works program for the current fiscal year was budgeted as of August 5, 1940 at $586 millions, the agricultural program at $1,090 millions, unemployment relief and aids to youth at $1,775 millions. These are important amounts; they total nearly as much as the whole federal outlays for fiscal years in the twenties. Each of these figures is larger than the corresponding item for the period of which the Secretary spoke three years ago. If the proposed expenditures were too high then, they are almost certainly too high now. There is reason to believe that substantial cuts might be made in them without adverse effects on our economy; and with material strengthening of our fiscal ability to meet great defense outlays. Nor are these particular expenditures the only ones which might be

[2] W. Randolph Burgess, "Financing the National Defense Program", speech made at the meeting of American Bankers Association, September 23, 1940.

drastically cut. Without serious impairment of necessary governmental services, a good many other economies may be effected. For example, in these days when private productive capacity will be fully employed, there is the best chance to effect reductions in government personnel, without increasing the unemployment rolls.

3. It is no longer possible, however, as it was at the time Secretary Morgenthau spoke, to balance the federal budget by cutting expenditures. Our actual defense expenditures in 1941 and 1942, out of the authorized total of over $17 billions, plus the ordinary expenditures, will exceed revenues from existing taxes probably by five billion dollars, even after such reductions in federal outlays as I have outlined. Should the Treasury plan to finance this excess entirely by borrowing, as similar deficits have been financed for eleven years? To be sure, the present debt limit of $49 billions will shortly be reached, and further borrowing will require new authorization. You will have observed that the Secretary of the Treasury, before going on his vacation, advocated the increasing of the debt limit by fifteen to twenty billion dollars. On the other hand, taxes are already being imposed at a high level, as compared to any previous period, whether of peace or war, in our recent fiscal history. Around 25 per cent of our national income is going for governmental expenditures. There were three new revenue acts in 1939; and the two adopted so far this year have made notable increases both in individual and in corporate tax rates. We could not expect Congress to vote, or the public to stomach, tax increases adequate to meet total proposed expenditures for 1941 or 1942. We should need to double our anticipated revenues, and with the best will in the world, it would not be easy to chart a tax program which would yield so much without disastrous repercussions. Moreover, no tax bill voted now will meet the current deficit. Nevertheless, we must pay the bill some day. In particular, we confront heavy expenditures to service the huge armament program after we have met its initial costs; to pay and outfit our newly enlarged army, and to fuel our battleships, for example. Hence, it seems the part of wisdom to accustom ourselves at once to the heavier burdens of taxation which undoubtedly will be required to meet the cost of preparedness in

this crazy world, so far as we can see, for many years to come. A revenue bill of 1941, to raise two or perhaps three billions of additional revenue, appears to be a necessity. The real question is where the new burdens should fall.

a. The income tax has just been heavily increased, as to both individuals and corporations, but if more money must be obtained, some of it should be obtained by this means. On the whole, income is a good register of ability to pay; and taxes on it are therefore among the fairest we have. Exemptions were lowered in June to $800 and $2,000, respectively, for single and married persons—not greatly in excess of the subsistence level. We could do a little more there, but not very much. Our normal rate of 4.4 per cent is low compared to some employed in the past, and the present normal rate of the British. Recent increases have been loaded on to the surtax schedule, partly because of a strong congressional desire to avoid heavy tax increases on persons with less than about $10,000 net incomes, and partly because some issues of federal bonds are subject to surtaxes and not to normal taxes. For more revenue, either the normal rate must be decidedly increased, or the surtax rates from $6,000 to $150,000 or thereabouts must be increased. The present exemption from surtaxes of $4000, plus the personal exemptions and credits for dependents, might very well be cut to, say, $1000; and the initial surtax rates sharply raised. The top surtax rates are already about as high as they can be made for maximum productivity; and there is little additional revenue to be gained even from a 100 per cent tax upon the comparatively few very large incomes. Indeed, it has been estimated that if all persons receiving $10,000 or more were allowed to keep only $10,000, and were required to pay the balance in income taxes, a total of only $2,321 millions would be raised.[3] We can no longer afford the luxury of tax-exempt governmental securities. All net income from all sources must be subjected to the tax. Finally, the deduction provisions in the law need to be overhauled; first, to make it clear that expenditures having to do with the earning or conservation of income which is reported are deductible; and second, to restrict or eliminate those de-

[3] *Conference Board Economic Record*, October 23, 1940, p. 406.

ductions which have no connection with income which is reported.

Perhaps I should say parenthetically that one of the real needs in this time, which is very apt not to be met, is the need for a thoroughgoing revision of the revenue system in the interests of equity, not merely in the interests of increasing our revenue. Our tax system was not particularly good when the defense program was undertaken, and the inequities, which those of us who have studied it know to exist, will obviously be accentuated by the severe increases in rates to which we must all look forward. It is very difficult to persuade Congress in times like these to do anything which will cost the Treasury revenue, and yet I think there is no matter of greater necessity than to insist that the system be improved at the same time that the rates are raised.

The corporate rate was increased more than one-fourth this year; it now stands at twice the figure employed only ten years ago. The excess profits tax is a still further increase, of large proportions in some cases. Moreover, corporate dividends are taxed to the recipient, with no credit for the taxes the corporation has paid on the distributed income. It is questionable whether much further increases should now be made in corporate taxes, even if individual taxes are advanced somewhat. Moreover, the corporate tax structure cries for revision in the interests of fairness, rather than of more revenue. For example, parent and wholly owned subsidiary corporations ought to be allowed to file consolidated returns for income tax, as well as for excess profits tax purposes. Individuals should be given a credit for normal tax purposes on corporate dividends received. The great need for new revenue ought not be allowed to veto changes which fairness requires.

b. The excess profits tax was prepared under great pressure this last summer. It is a very complicated hodge-podge, difficult to calculate, harder still to administer. Many of its provisions badly need prompt amendment. We have hardly settled in our own minds whether the tax should be imposed on the excess of present earnings over average earnings in past years, or on the excess of present earnings over a stated percentage of invested capital. The Treasury seems to favor the latter plan, the financial committees of Congress the former.

Ideally, it would be wiser not to increase the burden of this new tax until we are sure what the base should be, and until we have ironed out some of the known hardships and discrepancies in the law just passed. A year's experience with the law ought to enable both the Treasury and the taxpayer to speak with more authority regarding its equity and its utility as a revenue measure.

c. Neither the estate tax nor the gift tax rates have been increased since 1935, except for a flat 10 per cent increase, stated to be for five years, in the first revenue act of 1940. Parenthetically, I know of no surer way for you to determine whether a tax is to be a permanent feature of the system than to observe whether Congress states it is to be temporary. If Congress says it is to be temporary, you may be sure that you and your children will be paying it. Exemptions were somewhat reduced in 1938, but are still quite large. By judicious arrangements, several hundred thousand dollars can be passed from one generation to another without heavy taxation; and through trusts, all transfer taxation to one generation can be eliminated. Much as we all desire to be enabled to provide for our dependents after our deaths, there is still room in the present emergency for a lowering of exemptions and an increase in rates in the middle and lower brackets. The gap between the gift tax rates and estate tax rates might also be further closed.

d. The federal government employs a great variety of miscellaneous excise taxes, but not a general sales tax. There will have to be increases all along the line, and possibly a general sales tax will need to be imposed as well. It would exercise some deterrent effect upon private purchases, and thus upon inflation, and in both respects might indirectly aid the federal program of defense expenditures. The revenue produced would be considerable. On the other hand, our tax system already bears heavily upon the family with small income; and the general sales tax would increase the load. All of us, rich, middle class and poor, are going to have to bear greatly enlarged burdens. The ultimate problem is to distribute them as fairly as possible. The general sales tax may be found to be a necessary and equitable part of the pic-

ture, if income, corporate, estate and gift tax rates are to be raised as well.

4. The federal government will still need vast sums of money in 1941 and 1942 and later years, beyond any possible yield of our tax system, even as revised. Can the Treasury borrow it, and for how long? We are fortunately a country of enormous resources. Our banks still possess heavy excess reserves. Interest rates are still very low, and idle funds are large. There seems to be little question that billions can still be borrowed by the federal government, without immediate adverse effects upon our economy. Nevertheless, we have the largest backlog of debt which we have ever carried. As borrowings and spendings increase, the dangers of overexpansion and inflation become more and more real. Some day the great volume of purchasing power, already in existence and increasing, may enter the market; prices and then wages may start to spiral upward, and the era of inflation may be on. To forestall it, several precautions should be taken. The Administration should make every effort to get the federal budget under better control and to convince the country that it is really under control. We can hardly be said to have a federal budget at the present time because the budget which was presented to Congress at the beginning of the year is a completely unrealistic picture of what is going on now. At least the Administration owes us a clear statement of what it intends to do with the fiscal program of the United States during the next year. The power to issue $3 billions in greenbacks, and to buy silver in high additional amounts, should be terminated, and monetary controls more fully lodged in the Federal Reserve System. Machinery for price control should be kept available. In any event, so far as possible, new bonds should be sold to the people, not to the banks; and so far as possible, new financing of defense industries should be handled by the banks, not directly by the government.

Conclusion

Any survey of national fiscal affairs, of the vast program of expenditures now authorized, and of the vast program of revenue which will be required to meet it appalls one not only with the complexity of the technical aspects of the subject, but

with the far-reaching effects upon the community of the policies which are being followed, some of them apparently inadvertently. I have spoken only of the federal situation, but we know that we have state and local problems nearly as serious; and we know that state and local tax laws, and state and local expenditures duplicate federal ones at dozens of points. We have never taken the trouble to set up any machinery to coördinate the three sets of fiscal bodies, although it has been advocated and discussed for years. The time has come when we must do so, for no longer are the taxes, for example, of the three governmental agencies so insignificant that overlapping is a matter of indifference. Here is one place for a democracy to demonstrate that it can be efficient in its governmental processes, in this process essential to governmental life.

In the second place, we need a national fiscal advisory commission, as badly as we need a national defense advisory commission. We must devote the best thought and talent the country can summon to the problems of raising the vast sums needed, of adjusting the tax burdens as fairly as possible, of eliminating expenditures which can be dispensed with, and of preventing overexpansion and inflation. The Treasury has an excellent legal and economic staff working on these problems, but its members would be the first to urge that they be given all the experienced assistance which can be drafted. We would do well to avoid, if we can, the recurrence of the spectacle of a tax law of major importance being drawn under high pressure, apparently satisfactory to no one—with no adequate examination or consideration of the multitude of serious business problems which it raised, and of the changes in competitive conditions which it effected—and being passed by a House of Representatives with only an hour's discussion, because no one in that body knew what its provisions meant, much less what its effects on business might be. We have in this country the available fiscal talent, as we have the business talent, to advise fully and intelligently on the financial problems which we confront as a nation; to recommend those changes in existing tax legislation and those new provisions which will insure the government adequate resources to meet its needs. We are marshaling our man power for the emergency, to act under the

plans of an army general staff. We shall have to draft our best brains as well. The Treasury needs to enlarge its general staff with an expert advisory fiscal group; and if our services of supply are to function, it ought to be summoned and put to work at once. Our defense preparations in any event will be tremendously costly, and are bound to disrupt our normal modes of life. If we value the social and business civilization we have achieved, we must make every effort, first, that our fiscal policies may be as efficiently directed as our defense program; and second, that unnecessary dislocations of our economy be eliminated, so far as we can, by intelligent foresight.

REMARKS BY THE CHAIRMAN

CHAIRMAN WOLMAN: In a country in which fifty-five millions of men and women are engaged in the production and distribution of goods and services, it should be clear that the policies which govern the character and disposition of this labor force, its relations to employers and government, and the behavior of the organizations it has set up to protect its interests, go to the very roots of our current problems of defense production. The specialized questions of labor supply, hours of work, wage policy, internal conflicts in the organized labor movement have already received extensive discussion, but their bearing on production and the position of labor is far from clear.

No one whom I know is better qualified by knowledge and temper to lay before you the broad outlines of this problem and suggest the value of alternative policies. I am happy to introduce Sumner H. Slichter, Lamont University Professor, Harvard University!

NATIONAL LABOR AND PRODUCTION POLICIES

SUMNER H. SLICHTER
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I

THE United States is embarking upon the largest planned increase in production ever to be undertaken by a non-socialistic state in time of peace—if this be peace. The present appropriations and authorizations for defense exceed $19.1 billions of which $2.5 billions represents wages and salaries of government employees and enlisted personnel, and $16.6 billions payments for construction, supplies, material and equipment. Substantial additions to the defense program are likely, particularly if the Germans score important new successes.

Estimates vary greatly as to the rate at which expenditures will rise, the peak which they will reach, and the time of the peak. For the present fiscal year, armament expenditures are estimated at from $3½ to $5 billions.[1] Some estimates place defense expenditures for the fiscal year 1941-1942 as low as $7 billions, others as high as $10 billions. Production men, impressed with the problems of tooling, usually estimate a slower rise of defense expenditures than do economists. Most estimates place the peak of expenditures some time in 1942, but enlargement of the program or the necessity of greatly increasing our aid to the British would delay the peak. Some estimates place the peak of expenditures as late as 1945. This, of course, is based on a very long war.

Let us assume that defense expenditures for the United States reach a peak of $8 billions. The magnitude of such an

[1] This does not include the draft. During the first three months expenditures have been slightly more than $200 millions a month. It will be necessary for them to reach $600 millions a month by spring, if an annual expenditure of approximately $5 billions is to be attained. Even though the government's expenditures on defense fall considerably below $5 billions for the present fiscal year, private outlay on government orders (for goods partly completed but not delivered) will probably reach $5 billions.

outlay is not ordinarily appreciated. Although only half the peak of the World War, it is equivalent to adding two automobile industries each producing at nearly the 1929 rate. It is 43 per cent more than all of the industries of the country have ever spent in any single year on equipment. It is equal to 60 per cent of the expenditures for all kinds of durable goods (exclusive of plant) in 1937. Such an expenditure (at present price levels and present labor efficiency) would require 3 million men on the basis of a 40-hour week.[2] To our own defense program must be added the growing needs of Britain. Cut off from Swedish, French and Belgian ore, with factories and shipping under severe attack, her demand for

[2] The labor required to construct or manufacture the buildings, supplies, materials or equipment purchased by the government may be called the "direct" labor requirements of the defense program. In a way, the word "direct" is misleading because the labor requirements obviously include the man-years needed to produce and transport raw materials.

The United States Bureau of Labor Statistics has estimated that the $16,631,779,308 defense appropriations and authorizations made up to September 23, 1940, would require 8,380,467 man-years of labor. This estimate does not include amounts appropriated or authorized for wages and salaries of civil employees or enlisted personnel, but only appropriations or authorizations for the construction, purchase or manufacture of supplies, material or equipment. This estimate may be roughly checked by the use of figures of national income. In 1939, the income produced by the manufacturing, mining, transportation, contract construction, communication and electric light and other utility branches of industry was $25,852 millions and the payrolls (including salaries) in these industries were $20,328 millions, or 78.6 per cent of the income produced. The net product represented by the purchase of $16.6 billions of construction, supplies and equipment would be this amount less the taxes chargeable to this output, the capital consumed in producing it, and payments to foreign countries for raw materials consumed in making it. These deductions may amount to roughly 25 per cent of the gross product, making the net product about $12.5 billions. The average annual earnings of wage-earners and salaried personnel in the so-called "selected industries" in the estimates of national income of the Department of Commerce (manufacturing, mining, steam railroads, Pullman, railway express and water transportation) in 1939 were $1,416. This figure is affected by part-time unemployment within pay periods. To represent full-time annual earnings it should be raised by probably 10 per cent. If 78.6 per cent of the net product of about $12.5 billions represented by the government's expenditures of $16.6 billions went into payrolls and the workers received an average of $1,558 a year, the expenditure would produce 6,306,000 man-years of employment. This rough check indicates that the estimate of the Bureau of Labor Statistics is somewhat high.

American steel, planes and ships is likely to rise 2 billions above the present annual rate of about a billion. About 750,000 men would be required to produce this increase in supplies to the British.

The defense program and the growing British needs will require the construction of new plants and equipment for private industry.[3] This indirect demand for labor and materials is most unpredictable because it will depend upon the size of the defense demand at its peak and upon the extent to which it is met by expanding production rather than by limiting or reducing non-defense output.

Finally, the defense program will produce a large induced demand. The larger payrolls in the defense industries will create a larger demand for consumer goods which in turn will raise employment and payrolls in the consumer goods industries. But the workers who make the additional consumers' goods will attempt to buy from two thirds to four fifths of the goods which they produce. The size of the induced demand will depend upon the spending habits of the people of the country and upon the taxing and other policies of the government. It might vary from half to twice the combined direct and indirect demand.

II

In making production and labor policies for the defense program, three questions of basic importance arise:

(1) Should we plan the defense program so as to produce the largest possible increase in the national income and to create full employment?

(2) Should we sacrifice national income in order to get defense goods for ourselves and Great Britain sooner and in larger quantities?

(3) To what extent and by what devices should the planning of defense production take account of the problems of shifting from a defense economy to a normal peace-time economy?

At the beginning of the defense program in July 1940, there were about 9 million unemployed in the United States.

[3] Included in the expenditures for defense is the cost of some plants to be built by the government.

If expenditures in the peak year are approximately $8 billions for the United States and $3 billions for Great Britain, the direct labor requirements of the defense program and of Great Britain will be about 4.2 million men.[4] Nearly 400,000 men were probably engaged on production for the British in July of 1940. Hence the labor requirements of our defense program and of Great Britain at the peak would be about 3.8 million above July 1940. This would leave over 5 million unemployed. By the time that the peak defense demand has been reached (say in two years) there will have been an increase of about a million in the number of new job-seekers. For some years there has been a serious maldistribution of labor between agriculture and other industries. At least 2 million men could be transferred from agricultural to non-agricultural industries with a considerable increase in national income. Why should not the defense program be used to produce full employment and also to bring about a shift of 2 million men from agriculture to other industries? With 5 million more persons working on non-defense production than today and with 2 million shifted into positions of greater productivity, non-defense output per capita would be over 10 per cent above present level, our standard of living would rise, and the defense program would not be a burden but the basis for a higher standard of living.[5]

The idea is an attractive one. Undoubtedly large-scale production for defense is compatible with a considerable increase in many types of consumers' goods. But there is also competition between defense and non-defense production at many points, and this competition will limit our ability to raise our standard of living and to achieve full employment. This competition is aggravated by limitations of time. Full employment is a peace-time ideal. It assumes that there is plenty of time for balanced growth. By balanced growth I mean that as expanding payrolls in capital-goods industries and defense industries generate more demand for consumer goods,

[4] This assumes that the peaks of the two demands occur in the same year. Possibly the peak of the British demand will come before ours.

[5] It would be a *potential* burden in the sense that it would utilize resources which, *if available*, would make possible a still further rise in the standard of living.

there is a sufficient increase in the output of consumer goods to prevent an appreciable rise in the cost of living. Suppose that one fourth of any increase in the income of the community would be taken for taxes or would be saved and that three fourths would be spent for consumer goods. Under those circumstances maladjustment in the community's price structure would be avoided only if every increase of a dollar in non-consumer expenditures were accompanied by a three-dollar expansion in the output of consumer goods. The basic condition that supply of consumer goods must increase in proportion with demand for them sets the limit at which non-consumption expenditures can increase without producing maladjustments. Note that a large and sudden increase in non-consumer expenditures causes maladjustments in two ways. It increases the demand for consumer goods and it limits the increase in their output. Indeed, in extreme cases the expansion of non-consumer demand may actually reduce the output of consumer goods—as it did for a time during the World War.

The United States and Great Britain are engaged in a stiff production race against the facilities of all German-controlled Western Europe. Because we lack time, military considerations must take precedence over economic. We must expand defense production so fast as to prevent a properly balanced expansion of non-defense output. A peak expenditure on defense goods of $8 billions a year for the United States and $3 billions for Great Britain would absorb about one seventh of the national output. This is a smaller fraction than in 1918, when one fourth of the national output went into the war effort and when output of consumers' goods dropped, but it is sufficient to interfere seriously with the expansion of employment and output in non-defense industries. I say this despite the fact that we shall undoubtedly display surprising resourcefulness in developing substitutes and in discovering unsuspected industrial facilities—as we are already doing.[6]

[6] Equipment in a wide variety of industries may be utilized to eliminate bottlenecks. For example, a manufacturer of canning equipment or building equipment may have a planer or some other machine which can be used to perform a single operation or a group of operations which is holding up production in a machine tool plant. The direct cost of sending the operation

It is plain, for example, that some non-defense industries will be restricted in their supplies of raw material. The present capacity of the steel industry is just about sufficient to meet the peak defense demand and export needs plus the non-defense demand that will be generated by a 10 per cent increase in the national income.[7] Beyond that point the supply of steel will fall short of the demand. I venture the guess

out may be two or three times above the cost of doing it in the plant. Nevertheless, the elimination of this single bottleneck may increase the output of the entire plant by 20 or 30 per cent or even more. But the very expansion of subcontracting for defense will interfere with the elaborate web of subcontracting arrangements which are part of the peace-time organization of industry. For example, the demand of the war industries for gears may interfere with the ability of printing press manufacturers to obtain gears for presses.

[7] The steel industry estimates its annual capacity at 83 million net tons of ingots. The industry believes that over a short period it can produce about 5 per cent above this amount, or 87 million tons a year. (The rated capacity of 83 million net tons includes allowance for breakdowns and repairs.) It is doubtful, however, whether such a rate could be maintained for twelve months. The defense program is expected to require 8 million or more net tons of ingots in its peak year. Current exports are at the rate of 12 million tons. In view of the dependence of the British on us (since their loss of Swedish and other Continental ore) and the expanding needs of Canada, exports of steel may reach 15 million tons. The demand for steel is very sensitive to changes in the national income. The following figures compare the growth of the national income (adjusted for changes in prices) and the increase of steel production less exports for selected periods. The national income figures are those of the N. I. C. B.

	Increase in National Income	*Increase in Steel Production less Exports*
1902–1907	19.4 per cent	51.4 per cent
1909–1913	11.8	25.7
1925–1929	7.7	23.8

In 1939, with a national income of about $68.6 billions, steel production was 52.8 million net tons, of which 2.8 million tons were exported. This is a fairly normal output for this national income. If, under the stimulus of the defense program, the national income were to rise to $80 billions (or about 10 per cent above the current rate and 17 per cent above the 1939 rate), the non-defense demand for steel would probably rise at least 25 per cent above the level of 1939. The non-defense demand would rise much more than this except for the fact that many industries would not be able to use much additional steel because of the absorption of their facilities and men on defense orders. This would make the demand 62.5 millions. If 23 million tons are required by the defense program and exports, our present steel capacity would be barely able to meet the demand.

that, if the war continues, the amount of steel available for 1942 automobiles will be substantially less than that available for 1941 cars.

Limited supplies of skilled labor will also retard the expansion of employment in non-defense industries. The Bureau of Labor Statistics estimates that about one third of the labor required for the defense program will be skilled. American industry, however, always has shown remarkable capacity to adjust its technique to the labor supply. Consequently, I believe that under pressure from shortages of skilled men the defense industries will learn to operate with no more than one-fourth or one-fifth skilled labor.[8] Even this conservative estimate indicates that our defense program and the British purchases will need from 800,000 to 1,000,000 skilled workers at the peak.[9] With a moderate amount of overtime this demand might be reduced about 20 per cent. Even so, it would require an increase of over 60 per cent in the number of skilled workers in the metal trades.[10] It is scarcely conceivable that such an increase could be accomplished in a year and a half or two years. A large part of the requirements will have to be met by using men who are now engaged on non-

[8] There is no entirely satisfactory definition of what is meant by skilled labor. The usage evidently includes more than those trades which require an apprenticeship or its equivalent. The Department of Labor estimates of skilled labor requirements are conservative in the light of the Census of 1930. According to the Census, the proportion of skilled workers in automobile factories was 37.2; in blast furnaces and steel rolling mills, 29.1; in car and railroad shops, 47.1; in ship and body building, 21.2; in other iron and steel industries, 49.8. Alba M. Edwards, *A Social Economic Grouping of the Gainful Workers of the United States* (U. S. Department of Commerce, Bureau of Census, 1930), pp. 98-100.

[9] This assumes annual peak expenditures of $8 billions by the United States and of $3 billions by Britain.

[10] In 1937, the total volume of employment in the iron and steel industry, nonferrous metals and products, machinery (not including transportation equipment), transportation equipment, and the maintenance of equipment and stores departments of the railroads was 3,327,559. If we assume that one third of these workers were skilled men, the number of skilled metal workers in these industries was about 1,100,000. Of course, other industries have some skilled maintenance men who are metal workers and a few skilled production workers are metal workers. Few of these men, however, can be regarded as available for defense work.

defense work. This will limit the output of non-defense industries.

The defense program will require large amounts of machines and equipment. This is the worst bottleneck of them all. To give the durable goods industries the equipment they need for a peak year of $8 billions for us and 2 billions increase in supplies for Britain would involve enlarging their plant and equipment by a very large amount—probably over 25 per cent.[11] The necessity of using the machines and plants of a wide variety of non-defense industries—automobile, refrigerator, radio, printing press, electrical equipment—for defense purposes limits the possibility of obtaining an expansion of non-defense employment. And the more successfully we speed up defense production by finding makers of flutes, corsets, canning equipment, and a vast variety of other things who can take subcontracts on defense goods, the more we limit the increase of non-defense output.

III

The attempt to get large quantities of defense goods in a hurry is likely to cause money expenditures to increase faster than output. Let us assume that the deficit this year is $6½ billions, of which $3½ billions is met by real saving and $3 billions is inflationary. If each dollar of inflationary deficit produces another dollar of non-defense demand, the national income would rise from a rate of about $72 billions at midsummer 1940 to about $78 billions next summer. Increased British purchases and expansion of private plants might raise it $4 billions more to a rate of $82 billions next summer. Let us assume that defense expenditures in the fiscal year 1941-1942

[11] The amount is uncertain. It depends partly upon the amount of unutilized capacity in the durable goods industries and partly upon the possibility of operating multiple shifts. As pointed out in the beginning of this paper, the defense program in its peak year will require an output equal to 60 per cent of the output of the durable goods industries in 1937—a year when they were operating at a fairly high rate. The estimate of 25 per cent assumes a considerable addition to multiple-shift operation. The saving of plant and equipment by this device, however, is not always as great as first appears because the use of multiple shifts is likely to require a greater construction of new housing than would be necessary if new plants were built where housing surpluses exist.

are $8 billions and that the deficit is $7 billions, of which $4½ billions is met by real savings and $2½ billions is inflationary. If we continue to use a multiplier of 2, the national income at the end of the fiscal year will be running at about $87 billions. Additional stimulus from British and expanded private investment might raise the national income to $90 billions or 25 per cent above the rate of this last summer. This conclusion, of course, may be wide of the mark because the inflationary deficits may be larger or smaller than I have estimated and the assumption that one dollar of inflationary deficit produces another dollar of non-defense demand may be too high or too low.

In July 1940, about 46 millions of a working force of 55 millions were employed. Probably a million of the 9 million unemployed are not really employable. In the next two years, however, a million workers will be added to the job-seekers by the growth of population. An increase of 9 million in employment ought to raise the national output by about 19.5 per cent—provided there is plant and equipment for them to work with. In July 1940, the average weekly hours of work in manufacturing industries were nearly 37.5 hours.[12] Hence an additional gain of 6.6 per cent in factory output could be obtained by increasing the working hours to 40 a week. If we assume a similar increase in working hours for the entire working force and no change in efficiency, full employment would produce a national output of about $91.2 millions.[13] This is slightly more than sufficient to prevent a general rise in prices in case my assumptions of the increase in the national income that will be generated by the defense program are approximately correct. But the assumption that there is sufficient plant and equipment for 20 per cent more men is certainly wrong in many industries—despite the possibility of

[12] *Labor Information Bulletin*, September 1940, p. 16.

[13] Whether efficiency will rise or fall is a complicated question. There are both favorable and unfavorable factors. Consequently, it seems wise to assume no change. The progress of technology will tend to raise per capita output. On the other hand, the unemployed are undoubtedly below the average in efficiency. Furthermore, the large shifts in production and various dislocations attendant upon the defense program tend to reduce efficiency. For example, there seems to have been a drop in efficiency during the World War.

economizing plant by double shifts. Furthermore, the conclusion that industry might raise its output to slightly above $91 billions a year (at present prices) involves the unrealistic assumption that the non-defense industries can obtain all the raw materials, equipment and key men they need. As I pointed out a few moments ago, the large increase in defense production that must be made within a limited period of time is bound to limit severely the expansion of many forms of non-defense output. Consequently, it is likely that the badly balanced increase in output which our defense needs compel us to plan will generate an expansion of incomes faster than industry can produce goods unless something is done to prevent it.

IV

The prospect that incomes will outrun production is of fundamental importance in determining fiscal policy, hour policy, wage policy and investment policy. It obviously requires, for example, that the Treasury be prepared on short notice to limit consumer demand by vigorous campaigns to sell small denomination national defense bonds to millions of small buyers. What are the implications of the competition between defense and non-defense output for hour policy? Would a relaxation of the wage-hour law, which requires penalty overtime rates after 40 hours a week, reduce competition between the defense and non-defense production and help industry produce goods to match the rise in dollar incomes? Or should the 40-hour limit be kept as a useful work-rationing device in the non-defense industries?

As far as the defense industries are concerned, they are on overtime now or soon will be. Does the necessity of paying time and a half after 40 hours increase their wage bills and thus accentuate the tendency for the demand for non-defense goods to outrun the supply? To some extent it probably does, but I suspect that the net effect of overtime payments on payrolls is not great. The reason is that the payment of time and a half retards the rise in regular base rates. In other words, it makes possible high weekly earnings without a change in base rates. To this extent, it will later facilitate the transition from a war-time to a peace-time economy. In

some instances, however, the payment of overtime may cause men to slow up in order to create more overtime. When this occurs, the result may be serious, particularly if the types of labor involved are scarce ones. A careful investigation of overtime as an incentive to slow down is urgently needed.

The real problem of hour policy is likely to arise, not in the defense, but in the non-defense industries. Does the 40-hour week dangerously limit the amount which the non-defense industries can produce at low costs and thus aggravate the problem of preventing a substantial rise in the price level? Or do the difficulties in absorbing the unemployed in the non-defense industries warrant making penalty overtime begin at 40 hours a week? The answer to these questions will depend upon the nature of the obstacles to increases in the output of the non-defense industries. Where the limiting factor is lack of raw materials, the 40-hour limit is a useful work-rationing device. But where the limiting factor is the inability of the non-defense industries to obtain equipment or key men, then the penalty rate is likely to create an artificial shortage of goods which will cause many prices to rise.[14] When this happens, employers will gain and wage-earners and the rest of the community will lose. Business profits in the particular industries would rise because prices would be fixed by high marginal costs, but most output would be produced at low infra-marginal costs. A few wage-earners would receive overtime for a small fraction of their output, but the purchasing power of most workers would be reduced by the higher prices.

The conclusion seems to be that the problem requires more discriminating treatment than is possible under a blanket wage-hour law. In order to make such treatment possible, it would

[14] The degree to which this happens will depend upon whether employers base prices upon marginal cost, as economists have usually assumed, or on estimates of average cost. Although it is to the employer's advantage to be guided by marginal rather than average cost, it is not clear that employers are able to use such a precise measure. Indeed, the cyclical movements of the prices of finished goods and raw materials suggest that average costs or some other guide may be followed to considerable extent by employers in pricing their goods. If employers, in fact, use average costs, then the high overtime rates embodied in the wage-hour law will have less effect upon the price structure in the event that demand outruns capacity at 40 hours.

seem wise to introduce flexibility into the law by authorizing unions to negotiate agreements permitting straight time up to 48 hours if they desire. Of course, there is no assurance that such agreements would be negotiated when and where needed, but the possibility of flexibility would at least be created. Furthermore, a desirable stimulus would be given to the practice of fixing conditions of work by joint agreement instead of by law. The amendment would also constitute an admission that the relative values we place on goods and leisure fluctuate with conditions—a fact not recognized by the statute in its present form. Certainly, in times of national peril, goods rise in importance and leisure declines. And finally, we should bear in mind the relationship between the wage-hour law and fiscal policy. The fact that penalty overtime starts at 40 hours means that the Treasury must be just so much more alert to control the rise in money incomes.

V

The conflict between defense output and non-defense output is important in determining national wage policy. The tremendous demand for labor will produce demands for many wage advances. If shortages of raw materials, equipment and key men limit the output of consumers' goods, higher wage rates will do little to raise the workers' standard of living. Their main effect will be to produce a higher cost of living. Wage increases should be limited in general, therefore, by the productive capacity of the non-defense industries.

This does not mean that no wage increases are called for. The process of raising the very lowest paid men should still go on, though undoubtedly at a slower pace. Some changes in rates will be necessary to attract men into new communities and from steady jobs in non-defense industries into jobs which are not expected to last for more than several years. If an endless spiral of increases is to be avoided, however, the non-defense industries should be encouraged, not to bid against the defense industries, but to replace losses by training and upgrading more men. And the defense industries should be encouraged to train and upgrade rather than raid other employers. Training men, it should be noted, helps to reduce the real cost of defense by making possible a larger simul-

taneous expansion of both defense and non-defense production. Curiously enough, the principal raider in the labor market today is the United States government itself with its radio, movie and newspaper advertising for skilled men.

It is important to realize that in a defense economy, where the output of many varieties of consumer goods is limited by defense needs, the cost of living does not possess its ordinary significance for wage policy.[15] In a defense economy a rising cost of living is not a sign that wages should be raised. Rather it is a sign that demand is outrunning the capacity of the consumption goods industries. Wage increases would only aggravate the matter. Consequently, a rising cost of living is a warning for the Treasury to limit the excessive demand for consumer goods by stepping up its sales of baby national defense bonds.

If high wages in the defense industries are to serve the purpose of compensating the workers for the temporary character of the jobs, savings plans should be pushed in these industries. And where employers find it advisable to make wage concessions, the employees should be encouraged to accept the concession in the form of a bonus or unchanged base rates, the bonus not to be paid out currently, but to be deposited in a reserve against unemployment. In that way the workers avoid wasting their money in futilely bidding up prices of scarce supplies of goods and they increase their protection against unemployment when defense demand drops.

VI

To what extent should efforts be made to reduce the conflict between defense and non-defense production by increasing the capacity of industries which serve both, such as the machine tool industry or the steel industry? This problem raises a number of specific questions.

The first and most important is whether the capacity of plants furnishing both defense and non-defense production

[15] One may question whether the cost of living ever possesses the significance that has traditionally been attached to it in fixing wages. When the cost of living rises in a boom, does that not mean that the demand for consumer goods is outrunning the supply? Under such conditions do wage increases simply *shift* the demand for consumer goods or accentuate the tendency for demand to outrun supply?

can be increased without interfering with the progress of the defense program. For example, if the expansion occurs during the tooling period of the defense program, it is likely to delay the tooling. Obviously such expansion must be avoided. This means that there must be some resort to priorities—a complicated subject which there is not time to discuss.[16]

After the tooling of the defense program has passed its peak, should the expansion of plant serving both defense and non-defense needs be encouraged? Three principal objections are made to such expansion: (1) it would accentuate the danger of inflation by increasing the demand for consumer goods at a time when the supply of many of them could not be readily increased; (2) it is wasteful to build plants that would be used for only two or four years; (3) the construction of additional plant would reduce the marginal efficiency of capital after the peak of the defense program and thus aggravate the difficulties of shifting from defense to non-defense production.

The validity of the first objection obviously depends upon the success of the Treasury in controlling consumer demand by bond sales. If the Treasury fails, the objection has validity. Otherwise it has not.

Whether it is wasteful to build plants that would be used only three or four years depends upon whether the plants are built with labor which would otherwise be idle. Naturally important questions of write-off are involved. If the plant has temporary usefulness only, it should be written off in two or three years if possible and the tax law should make that permissible. Since the corporate income tax is now 24 per cent, a rapid write-off may be possible without an advance in the price of the product. As a matter of fact, most plants which would supply both non-defense and defense needs will probably be of permanent use, because ten years of slow ex-

[16] Priorities involve the difficult problem of treating competitors alike—or as nearly alike as possible. Since some competition is between industries, complete equality of treatment can scarcely be achieved. Priorities involve important and complicated problems of timing. If the automobile industry is to be rationed with respect to steel, can it be given defense orders and machine tools in time to shift with little gap from making automobiles to making defense goods? If there is a long period when automobile production is low and the production of defense goods has not started, the industry may lose a considerable part of its skilled men to other industries.

pansion have left our industrial establishments too small for our working force. Furthermore, excess capacity has a way of eliminating itself by stimulating managers to make more vigorous efforts to find new uses for their products.

The marginal efficiency of new investments depends only partly upon the amount of plant in existence. It is far more dependent upon the stability of prices, upon cost-price relationships, and upon the rate of technological discovery. If we allow prices to be bid up under the influence of inflationary deficits to a point where they will not remain after deficits decline, while costs do not drop with prices, then the building of needed plants should surely be deferred. A backlog of deferred construction will be needed to facilitate recovery from the crash that such a short-sighted fiscal policy makes inevitable. The mere expansion of plant capacity, however, need not be expected seriously to reduce the marginal efficiency of capital. And if the "overdevelopment" occurs in industries which supply capital goods, such as steel or machine tools, it will increase the marginal efficiency of new investments by reducing the cost of capital goods, and to that extent it will facilitate the shift from defense to non-defense production.

VII

Employment on defense orders for the United States and Britain will eventually decline from a peak of about 4.2 million men to about 500,000 who will be needed to produce replacements as equipment wears out. This means that the shift from production for defense to production for peacetime needs will require an expansion of over 4 million in employment in non-defense industries. If our maximum output of defense goods for the United States and Great Britain is about $11 billions a year, the problem of adjustment will be somewhat smaller than after the World War when, in 1918, about $16 billions out of a national output of $62 billions went into the war.[17] Furthermore, the control of prices during the World War was very imperfect and their great rise (and the inventory speculation which accompanied it) made the transition more difficult.

[17] Clark, J. M., *The Costs of the World War to the American People*, p. 33. But the wholesale price level in 1918 averaged 131.3 against 79.5 for the week ended November 23, 1940.

The shift from defense to normal activity will be facilitated by the unsatisfied needs which will accumulate because of the necessity of placing output for defense ahead of non-defense production. For example, if we are allowed only 2 million automobiles in 1942, against the usual 4 million, a considerable backlog of demand will be built up. The need for machinery replacements will be large, because about 70 per cent of the present machines are over ten years old.[18] The problem of transition will be affected by the state of the balance sheets of millions of Americans at the time that defense demand begins to drop. Large short-term debts for consumer goods purchased during the boom will make the problem more difficult. Fortunately, the defense program, by restricting the output of automobiles, refrigerators, and other durable consumer goods, will tend to keep down consumer indebtedness. If the Treasury is vigorous in persuading millions of persons to buy baby national defense bonds, the transition will be facilitated. The gradual liquidation of small holdings after the emergency will raise the proportion of the national income spent for consumer goods. The Liberty Bonds held by millions of Americans in 1920 provided the first payments on thousands of automobiles and houses.

The aid from the accumulation of unsatisfied wants and the accumulation of potential purchasing power in the form of government bonds will be only temporary. The real problem of transition is to establish the conditions that will produce an expansion of at least 4 millions in employment in non-defense production over the level prevailing at the peak of the defense program. If there is still unemployment at the peak of the defense program, the problem is one of providing an even greater increase than 4 millions—say 8 millions or more above the present level of employment. Obviously, this expansion will depend upon the outlook for profits, because men will not be hired unless their employment gives responsible promise of yielding a return. How much must the prospect for profits be improved in order to raise the demand for labor by 8 millions above present levels and how can the necessary improvement in the outlook for profits be brought about?

[18] *Factory Management and Maintenance*, August 1940, p. C 10. In 1925 only 44 per cent of the machine tools were ten years old.

During the twenties, a high level of employment was sustained with about three out of five corporations making money. In the best years since 1929, only two out of five have made money. It is probable that the ratio of three money makers out of five needs to be restored. The necessity of doing this affects production and labor policies under the defense program in two principal ways. In the first place, improvement in the prospect for profits requires that the price level shall not be artificially raised by the deficits of the government so that the drop in government spending means a collapse of prices. In the second place, improvement in the prospect for profits requires that costs be reduced relative to prices.[19] Industry will improve cost-price relationships, if given time.[20] One of the dangers in deficit financing comes from its tendency to raise artificially the amount of employment that will be provided under given cost-price relationships. Hence, it tends to build up cost-price relationships which require a perpetuation of the deficit. This danger must be carefully guarded against in administering the defense program.

The amount of employment that will be provided by given cost-price relationships depends upon the rate of technological discovery. The difficulties of post-defense adjustment will be substantially reduced if the rate of discovery is high. Undoubtedly experience with defense production will yield considerable knowledge that can be applied in non-defense industries. Since time is required to bring discoveries to the production stage, it is important that thousands of concerns start at once on greatly enlarged research programs.[21]

[19] The profits of some enterprises may be unnecessarily low, not because their prices are too low relative to costs but because they are too high—as a result of the management's misjudging the market. But, although this mistake is a common one, it is probably less prevalent today than it usually is, because costs have risen rapidly since 1933.

[20] In certain respects the defense program itself will help managements to reduce costs. The program will plainly be a powerful stimulus to the improvement of employee training and the developing of better supervision. At the end of several years we are likely to have a better trained labor force than we have ever possessed.

[21] The price relationships which enable concerns to make money provided they are large enough to do research on an extensive scale may keep many other concerns in the red and may retard the entrance of new concerns into business. Consequently, the more dynamic business becomes, the more

One occasionally hears it said that the United States is too old and fully developed to provide full employment for its people. When one considers that as early as 1935, before the armament boom had started, thirteen out of twenty-three countries reported by the League of Nations had surpassed their industrial production of 1929, and that these countries included the United Kingdom, Denmark, Hungary, Sweden, Greece and other old countries, the pessimistic conclusions concerning our capacity to grow are not convincing. The volume of employment is not primarily a matter of age. It is a matter of the stability of the price level, of the nature of cost-price relationships, of the rate of technological discovery, of the volume of savings, and of the relative preference of savers for cash and for ownership of shares in industry. If we do a good job of managing prices and cost-price relationships during the defense emergency, of stimulating technological discovery, and of making the ownership of American industry attractive, the shift from defense to non-defense production will become the means of bringing us closer to full employment and of greatly raising the standard of living.

important it is that research facilities be readily available to all concerns, both large and small. The extension of research, particularly product research, to small concerns is a matter of first importance with which trade associations and institutions of technology might concern themselves.

REMARKS BY THE CHAIRMAN

CHAIRMAN WOLMAN: The next subject, "Legislative and Administrative Impediments to Production", will be discussed by a speaker who knows the ways of both government and business. He has represented or negotiated with organized business and organized labor. In the government, he has held positions of high authority and responsibility, and, as an attorney, he has been practicing law in that confused area where politics and economics meet.

I am happy to introduce to you, our next speaker, Mr. Donald R. Richberg!

LEGISLATIVE AND ADMINISTRATIVE IMPEDIMENTS TO PRODUCTION

DONALD R. RICHBERG
Former Chairman, National Recovery Administration

THIS is a distressing subject for discussion because many persons fervently believe that production should never be restrained by either private agreement or public authority. Many others are so impressed with obvious examples of overproduction that they are willing to call on government to save them from economic indigestion. There is much to be said for both points of view.

The unbridled competition of automobile makers has deluged us with more motor cars than can be driven or parked comfortably in the streets of any large city. It seems that New York City, for example, will soon be compelled to exclude all private passenger cars and to limit the number of trucks, taxicabs and busses, unless further experimental regulations of business by government succeed in reducing more rapidly the population and business of the metropolis.

The untrammelled freedom of the press has given us newspapers and magazines too big and too numerous to read. Millions of homes are gradually becoming mere storehouses of unread newspapers, pamphlets, magazines and books, which the well-read man must read, but cannot.

Our government has been trying for many years to stop the overproduction of food and clothing, which, as part of a a political program to meet the needs of forty million undernourished, ill-clad people, requires a good deal of explanation.

There has been such an overproduction of oil, and waste of this great natural resource, that state and federal governments have sought to reduce the output of this industry and to achieve the economic miracle of reducing production and price at the same time.

If one can lay aside a sense of humor and view with proper solemnity the complex problem of readjusting a primitive com-

petitive economy to the needs of the modern world, he will see that by some magical device we are seeking to perpetuate the principles of an economy of scarcity in a civilization which is striving to attain an economy of abundance.

The competitive prices and profits of free enterprise are based on scarcity—on the existence of a greater demand than supply. Whenever more of something is produced than can be sold, the selling price naturally will go down until production becomes profitless. Then business men will usually stop producing and farmers (or others who keep on producing) will go bankrupt.

Without regard to causes, which are obscure and debatable, it is a fact that our productive capacity in the United States has been far greater than our consuming power for many years. In the search for economic recovery, we have been experimenting publicly and privately with a great variety of methods for increasing purchasing power and restraining overproduction. Let us look at a few examples just to understand the confusion of thought and the working at cross purposes that have impaired national efficiency.

In agriculture, government has aided and encouraged coöperation among producers to curtail production, to hold surpluses off the market, to establish and maintain scarcity prices —that is, prices higher than cost of production—which prevail only when demand exceeds supply.

In industry, after the half-hearted, half-understood, and inadequately sustained experiment of the N.R.A., government turned away from an effort to encourage production, by protecting tolerable prices and wages from intolerable competition, and devoted its energy, first, to increasing the power of labor organizations to control the production and wages of labor and, second, to preventing capital from organizing to control the production and wages of capital.

So we have been working into an economy partially controlled by coöperative organizations of all manual labor, in factories, shops and fields, including coöperation between managers of large-scale agriculture. In this economy, that which we call free enterprise is apparently to be preserved only by the unrestrained and legally compelled competition of investors and managers of capital. These adventurous com-

petitors are expected to produce continually more than can be profitably sold and so to engage in either profitless production or at best in production offering such a low return on investment that government bonds become more attractive for prudent investors than the stocks and bonds of private corporations. Under these conditions, we may well ask certain questions:

1. How can we expect industrial managers to induce investors to put money into venturesome expansions of existing business, or into the more risky creation of new enterprises and the production of new goods or services?

2. How can we expect to have business make larger profits, which may be taxed to provide larger revenues to pay larger costs of government, including the enormously increased cost of national defense?

3. How can management pay higher wages without charging higher prices, except by increasing machine power, employing less labor and thus creating unemployment and reducing purchasing power?

4. How can new industries be developed and old industries expanded so as to provide additional work for labor unless investors are encouraged to invest by the hope of making a profit commensurate with the risk taken?

5. How can business managers maintain competition, make profits and induce the investment of money in their businesses, when the basis of competition in cost is destroyed by fixed wages for labor and fixed prices for raw materials produced by agriculture, and when management is under constant, heavy pressure to produce more goods than can be profitably sold?

Now there may be a specious answer to these questions found in the fact that we still have highly efficient industries in this country, which are making money for investors. But the explanation of this happy fact is that the new economic order toward which we are dragging our reluctant feet has not yet become effective, for several reasons:

First: neither agriculture nor labor has been so completely organized as to eliminate the competition of millions of wage-earners and farmers.

Second: the enormous momentum of the existing system will keep it going through a long period of disintegration.

Third: there are continuing opportunities for competition in the gradual mechanization of production, in the variations of public taste and prejudice, which are so evident in choices of food, clothing, house furnishings, etc., and which permit differences in prices and services and shift customers from one product to another, for no fundamental reason.

Fourth: when the need for coöperation and common counsel is essential, men will always find ways of working together, notwithstanding restraints of public law or private coercion. Observe, for example, how labor unions rose despite cruel and powerful opposition. Observe today how price leadership is accepted in many a trade or industry without any agreement or other violation of law, but simply as the exercise of individual judgment, just as when a crowd moves to follow the few who seem to know where to go.

Finally: we must all understand the need of oversimplifying any such discussion as this, in which we are seeking to analyze the trends in a vastly complicated political economy. It has not been my intention to charge public officials or any class of people with inconsistent, lopsided or deceptive policies. I have sought only to point out that our prevailing faith in a competitive system of free enterprise and our public and private efforts to improve that system do not add up to make sense.

We are, in fact, doing a great deal to destroy a democratic economy and a political democracy in our efforts to reconstruct our political economy without a clear understanding of what new order we are trying to create. It is entirely logical for those who believe in state socialism to encourage dissatisfaction with the old order. It is entirely logical for the militant socialists, whether communists or fascists, to intensify class conflicts, to foment antagonisms between wage-earners and employers, between big and little business and between political partisans. It is quite logical for such upsetters to embitter the unfortunate against the fortunate, to emphasize differences of race, color or creed, and to sneer at old idealisms.

But for sober, well-meaning people who really wish to find democratic solutions for new and difficult problems, there is one fundamental principle by which to test the good faith or good sense of any leader of business, labor or politics: does he believe in voluntary coöperation as the ultimate means of con-

trolling and improving our industrial system? If so, he will not deny that opportunity to anyone. He will not seek to *compel* anyone to join an organization or to take orders from any boss. Nor will he seek to *prevent* anyone from choosing his own associates and accepting any discipline to which he voluntarily subscribes.

This may seem to some to be a glittering generality with which most persons would agree, and in response to which the modern cynic will ask, "So what?" But if you seek to apply this generality as a principle, you will soon discover why you approve and disapprove at the same time so heartily of some of the laws and their administration which are the subject of such hot debate today. And you will also discover why so many of these laws and their administration are serious impediments to production.

In their beginnings, and in essence, all the industries of a free people are the product of voluntary coöperation. I do a task for you in exchange for one you do for me. Unless I do this voluntarily, my labor is not free; and I am not a free man. The compulsions of nature, my hunger and desire, may force me to an unwelcome task; but I do not tolerate the force of the will of another man compelling me to work for him instead of for myself. The good boss from whom I am willing to take orders, in the exercise of self-discipline, is the friend of the free man, whether he be a business manager, a labor leader or a public official. But the bad boss from whom I take orders only because of fear of punishment is the enemy of the free man, whether he calls himself a benevolent employer, a friend of labor or a public servant.

Now, let me become quite concrete by applying this principle to three laws, which, although honestly intended not only to correct evils and injustice, but also to stimulate both production and consumption, are, by the combination of unsound provisions and wrong-headed administration, impeding seriously production and diminishing purchasing power. I name three laws with fundamental purposes which I have espoused all my life: (1) The Securities and Exchange Act, intended to protect investors from dishonest or reckless financiers. (2) The National Labor Relations Act, intended to protect labor in the right of self-organization and collective bargaining. (3) The

anti-trust acts intended to prevent monopolistic restraints of trade. What is wrong with these laws and their administration?

Minor weaknesses in the wording of these statutes or in their execution need not be discussed. The fundamental weaknesses can be briefly stated.

I. Although the object of the Securities and Exchange Act was to protect investors by compelling adequate publicity to be given to financial facts, policies and practices, and by preventing fraudulent representations and practices, the law was so worded as to give to a government commission vague and undefined powers of control over what investments can be induced and how corporations shall be financed and operated. The Commission has regarded itself as given a mandate to reform the financial structures of great corporate enterprises; to disintegrate and liquidate holding companies; and to alter, veto and otherwise control the management of vast properties regardless of the wishes of investors, but in accord with the discretionary decision of the Commission as to what is good for the investors or beneficial to the public interest. I may state that this is not a partisan statement; this is merely a summary of what the Commission and its staff have described as their own functions.

The exercise of such powers violates the fundamental principle of voluntary coöperation. The inevitable effect is to create insecurity, not security, in the investment of money. The success of an enterprise is made to depend, not on the judgment and ability of its chosen managers, but on the wisdom of remote public officials who are not competitive managers of business, but social managers seeking, not to make one enterprise profitable, but to make all enterprises serve the common good, a task utterly beyond the capacity of any such inexperienced, overburdened group of public officials, no matter how clever they may be, or how well meaning.

II. The ultimate object of the National Labor Relations Act was to establish coöperative relations between employer and employee, and for that end to protect wage-earners in exercising their right of self-organization and collective bargaining. A one-sided law with partisan administration has made the government the fomenter and supporter of class warfare.

Instead of bringing employer and employee closer together, the law has driven the wedge of litigation between them. There has been in the federal statutes since 1926 a labor law which has preserved peace and steadily improved the coöperation of capital and labor in one of our largest industries. That is the Railway Labor Act. Under that law, the government exercises practically no compulsory powers. Public officials mediate and conciliate and provide voluntary arbitration in labor disputes. Even in the extremity of a strike of national consequence, a government board has no coercive power except an appeal to public opinion. And I should add parenthetically that since the enactment of that law, there has not been a major strike on the American railroads, that is, a strike of any consequence.

All the proven wisdom and efficiency of the Railway Labor Act were rejected in giving the National Labor Relations Board coercive power to aid one party to a labor dispute and no power at all to promote even-handed justice and voluntary coöperation. The law was badly conceived and has been badly administered. It has been a serious impediment to economic recovery.

III. The anti-trust laws were intended to prevent monopolistic restraints of trade and to eliminate unfair methods of competition. They have been transformed by judicial interpretation and by administration into instruments for destroying or limiting the effectiveness of big business in reducing costs and stabilizing employment. They have been used to prevent small and big enterprises from coöperating (1) to adjust production to consuming power, (2) to eliminate the wastes and cruelties of ruthless competition, and (3) to plan for the orderly conduct and growth of essential industries. With the ostensible purpose of protecting consumers, the anti-trust laws have been used to hamper a healthy coöperation of competitors in reducing costs, in stopping the waste of natural resources, in stabilizing employment, and in making it possible for individual free enterprises to compete fairly in a soundly coordinated industrial system.

The government ought to exert its power to stop every monopolistic practice by which production or prices may be controlled for the benefit of special interests, whether by

patents, by unfair competition, by the abuse of financial power, or by the oppressive use of the economic power of either industrial or labor organizations. But when the government undertakes to brand every coöperative effort that may affect production or prices, no matter how beneficently, as an unlawful restraint of trade, it impedes production, hampers efficient distribution, and retards economic progress. Here again, the government violates the fundamental principle of voluntary coöperation. Instead of promoting the social service of free enterprise by a friendly supervision and stimulation of business, the government, hostile and punitive in every intervention, serves as a reactionary brake upon the productive powers of modern industry.

Other laws, other political activities, might be cited, by which economic recovery and progress are impeded, such as laws and policies of taxation. But the examples given are sufficient to make clear my major proposition. If we are to preserve a competitive economy, if we are to preserve a political democracy, which can be maintained only on the basis of industrial democracy, we must resolutely insist that government refrain from establishing political controls of industry. And that is precisely what I mean; I mean political and I mean controls—which is quite different from appropriate and proper and necessary governmental regulation to prevent abuses. We must call upon government to encourage and to sustain the private leadership in agriculture, in industry and in labor of those who seek, through the willing coöperation of free men, to establish the agreements, the discipline and the managerial controls essential to create and operate an efficient industrial organization of the natural resources and the manpower of the United States.

We should treasure the wisdom enshrined in one great sentence: "Upon the slender thread of contract hangs all our civilization." We should realize that the armament, the police and prisons of a government of force can make no people happy, strong or prosperous—that force can only make men miserable, weak slaves. Let us never forget that the watchwords of a democracy are not "It is ordered", but are "It is agreed."

Remarks by the Chairman

Chairman Wolman: These problems and policies which you have heard discussed this afternoon are not peculiar to this country. Many governments have in recent years been forced to deal with the same or similar questions and each has met them in its own way. From their experience, we should have much to learn, and it might well repay us to examine the course of economic policy in other countries much more carefully than we have yet done.

Our final paper is concerned with the effects of labor policies abroad, particularly in France, on production for defense. We are greatly indebted to Mr. Donald B. Woodward, assistant to the President of the Mutual Life Insurance Company of New York, for undertaking this difficult assignment. Mr. Woodward!

LABOR POLICIES ABROAD

DONALD B. WOODWARD
Research Assistant to the President, Mutual Life Insurance Company of New York

AS Dante says in the *Inferno:* "Of all to speak at full were vain attempt; for my wide theme so urges, that oft-times my words fall short of what bechanced."

Such variety and complexity have marked labor policies abroad for a number of years that, rather than to attempt a general and necessarily inadequate summary, I want to devote this time primarily to the policies of a single great nation—France. France concentrated a large variety of experience in a short time. The labor policies of France are a completed chapter, which can be read through to the end without stopping in the middle of a sentence, and the French experience is particularly pertinent to this day's subject, "The Defense of the United States".

Labor is one element of economy, and cannot be dissociated from other elements, cannot be removed from its context. Four features of the French economy operative over a long period of time have contributed to the development and results of recent labor action and policy.

First, France for decades followed a policy of protection—protection of a market limited in size, unlike that of the United States. Partly as a consequence of this relative lack of competition France experienced less industrialization, stayed closer to the soil, and the size of enterprise remained small. The smallness of business units in turn was one factor impeding the progress of modernization of industrial equipment and rationalization. The over-all result of this complex of factors was a relatively rigid industrial system deficient in organization.

Second, the French budget was chronically unbalanced, and a French budget, as you know, is extraordinarily complex, baffling even expert analysts, with annexed, special, ordinary,

extraordinary autonomous and appended budgets designed to hide and confuse. While devastation wrought by the first World War accounts for budgetary difficulties in the 1920's, the unbalance long antedates the first World War and post-dates the reconstruction period. This persistent budgetary tendency manifests a lack of political and economic discipline; and, together with the practice of protection, evidences the continuing presence of dominating pressure groups, who, as Dante has Virgil say of certain doomed souls, "but for themselves were only."

Third, France over a long period of time drew on foreign labor, recruited from across its borders. Between 1922 and 1931 at least 1,750,000 foreign workers entered France. The nation's own industrial labor supply has been restricted both absolutely by a slower population growth than that of most other countries and also relatively by the growth of government functionaries and pensioners. The World War accounted for a loss of about two million in population, both because of actual military losses incurred and because of the decline in the birth rate resulting from the War. By 1930 the population of France had only re-attained its pre-war level. Between 1930 and 1936 the supply of skilled labor, furthermore, had been decimated by depression.

Finally, fourth, France traditionally has been an individualist nation. The characteristic has marked both politics and economics—marked the former by the unusual number of political parties and groups, and the latter by small individualistic enterprise and by the comparatively decentralized character of the labor movement. Such decentralization meant that labor could hope to achieve its ends only through short and unexpected strikes which had become traditional in French industrial relations.

Upon the French economy marked by these four significant characteristics fell the world-wide depression of the 1930's, coming in its full intensity rather later than to other important countries. Currency depreciation elsewhere and rigidity of the economy left the franc substantially overvalued, and export trade was doubly damaged by the shrinkage in volume and the currency handicap.

France, like every other country, at first attempted patchwork solutions, but she was caught between unwillingness to engage in currency depreciation and inability to readjust her costs. Even though the deflationary program of Laval in 1935 made some progress, the rigidities of the economy, the unsolved budgetary situation, the lack of economic and political discipline caused this effort to be repudiated.

Subsequent French reaction to the agony of depression differed from that of other major countries in accord with the environment and French character. While Germany and Japan and Italy turned primarily to authoritarian and military procedures, while England typically adopted commercial and financial devices, France, like the United States, emulated the headless horseman and rode away in several directions simultaneously. The two belligerent wings of labor united, the voters rose against the fascist flirtation of the Right, against the hardships of Laval's deflation, against repeated evidences of governmental incompetence, the *Front Populaire* was elected with a powerful endorsement of its social program, and Leon Blum became premier in June 1936—to the accompaniment of a nation-wide industry-paralyzing sit-down strike. The workers were determined not to await even the normal legislative processes which hostile employers might utilize to delay attainment of their objectives.

Blum, although admitting the illegality of such sit-down strikes, refused to order police to eject the strikers for fear of precipitating greater disorder. On June 7 he called representatives of strikers and employers together at the Hotel Matignon, and on June 8 persuaded them to sign an agreement concluding the strike. This "Matignon Agreement" embodied provisions for a 40-hour week and for immediate wage increases of 7-15 per cent, as well as a number of other reforms later enacted into law by Blum. Blum then turned to the task of translating his program into law.

Two lines of action predominated. First, France embarked on a major program of social legislation. Second, the Blum government not only repudiated Laval's deflationary efforts, but swung rather violently in the opposite direction. Both lines of action were motivated by the purchasing power-reflation doctrine and a spread-the-work attempt, familiar to us in this country.

Social reform centered on an attempt to reduce the work-week to 40 hours, at the same time not only maintaining existing weekly pay but attempting to increase it. The reduced working period was to be put into operation gradually by decrees in each industry after consultation with organizations of workers and employers involved. At the same time machinery was set up to compel collective bargaining if a trade union or trade association demanded it. Collective agreements reached were to embody minimum wage provisions, and the Minister of Labor, by decree, was empowered to extend the provisions of such agreements to cover workers and employers not parties to the original agreements. Provision was made for an annual holiday of two weeks with pay.

The application of these measures was substantially more rigid than has been the case in the United States as regards allowance for overtime work, for rotation of shifts and weekly arrangement of hours. It was also more drastic in relation to past practices than anything we have done.

Business faced very great difficulties in trying to adjust itself to these violent changes, and in addition strikes continued almost without interruption—strikes which frequently contravened even one of Blum's own laws, passed December 31, 1936, stipulating that resort must be made to arbitration before any strike or lockout action could be taken.

Accompanying these social measures an elaborate public works program was undertaken, loans and advances to business provided, moratoria laws enacted, valorization schemes for chief agricultural lines adopted, government control over the monetary mechanism—the Bank of France—seized, and authorization for nationalization of big key industries, an object of the C. G. T. since 1919, made. Little attention was given to the international situation.

The program was undertaken, let me again emphasize, in an immediate environment which included a greatly disturbed international situation, disorganized internal political and economic conditions, precarious monetary and financial position, poor capital equipment, a tendency to labor shortage, and a deliberate government policy of furthering an exodus of foreign workers. And it was undertaken by a government feared by capital.

STATISTICS OF LABOR AND PRODUCTION IN FRANCE [a]
1935–1938

	(1929=100)		(1930=100)				
	Output per Hour Worked	Output per Man	Hourly Wage Rates		Numbers Employed	Total Hours Worked	Industrial Production
			Paris (skilled) workers	Other Towns (chiefly skilled) workers			
Year							
1935	109	99	102	99	72.1	92.7	74.8
1936	117	105	116	115	73.0	95.2	79.3
1937	133	104	165	146	77.5	83.8	82.8
1938	121	94	172	162	80.7	80.6	76.9
Per cent change							
1935–1936	+ 7.3%	+6.1%	+13.7%	+16.2%	+1.2%	+ 2.7%	+6.0%
1936–1937	+13.7%	— .9%	+42.2%	+27.0%	+6.2%	—12.0%	+4.4%
1937–1938	— 9.0%	—9.6%	+ 4.2%	+11.0%	+4.1%	— 3.8%	—7.1%

[a] Sources: League of Nations, *World Production and Prices*
International Labor Office, *International Labor Review*
Statistique Générale de la France

While these series are not strictly comparable they have been used as indicators of general trends in French industry.

In evaluating this program, we know in retrospect that its effect on productive efficiency should have been the criterion in an economy preparing to defend its very existence. In different circumstances a different criterion might have been used—but the circumstances were not different.

In the early stages of this program, until March 1937, production rose. Apparently three factors were responsible. Productivity of labor rose with the shortening of over-long hours, there was a speculative attempt to beat rising costs expected to result from shortening of hours and possible further currency depreciation, and strength was imparted by world recovery. But as hours worked continued to decline—which they did even after Blum was overthrown in June 1937—production again fell. Deficiencies in industrial plant and organization remained uncorrected because capital was hoarded or fleeing the country; even after some improvement in late 1938 private borrowers, according to Reynaud, could not obtain funds under 10-12 per cent if the slightest risk was involved. Hours arrangements specified in collective agreements and decrees continued rigid. Strikes also persisted and, since the number employed increased despite decreases in total hours worked, the presumption is that less efficient workers were being used. I am providing a table for the PROCEEDINGS showing some of the statistics of the period, those deplorable French statistics which give such a headache to all who try to work with them.

At the same time the effects of this program, in the environment in which it occurred, produced financial developments that gravely hampered production. Costs rose drastically as the increase in productivity failed to keep pace with rising money costs. Hourly money wage rates of metal workers rose 90 per cent between 1935 and 1938; wage rates in general rose more in Paris than elsewhere and more among unskilled than among skilled workers. These higher costs impaired the financial condition of business, at the same time aggravating French loss of markets abroad due to an overvalued franc. The burden of expanded public expenditures made impossible an already precarious budgetary position. Currency depreciation, forced on Blum, was forced again and again on his successors and, by raising costs of imports, hampered production.

Over all there was a pervasive disorder: resistance by capital, unending strikes which at times brought protests from labor leaders themselves, and governmental timorousness, hesitation and maladministration.

By the criterion of production, therefore, the labor policy adopted in the existing environment harmed France. Had the environment been different, had the program been more moderate, had capital been more coöperative, had time permitted readjustments—if, if, if—our evaluation might be different. But only the novelist can tell what would have happened, if.

Blum himself soon saw that, failing a rigidly planned and controlled economy, moderation was necessary to induce the return of capital required to finance industrial rationalization, and called for a breathing space in March 1937. Both he and his successors sought more or less assiduously to readjust government policy to fit French conditions and needs. Some progress was made, but the forces of impairment to production, partly accumulated in long historic developments, partly loosed by the *Front Populaire* policies, partly a reflection of world economic trends, were not corrected, and of all the men who tried, it may be said that it was later than they thought. Too little was done, too slowly and too late. Of course, there were "good reasons"—of course, capital is not attracted by a depreciating currency and threats of nationalization; of course, government does not oppose too vigorously those whose votes elected it and whose support it must have; of course, labor is unwilling to sacrifice the gains for which it has struggled so hard. But those good reasons are poor solace for the French groups today.

We are not permitted to know in detail what happened in the later stages. We know from the statistics that production remained low, appallingly low in comparison to that attained by the monster across the Rhine. We know from the reports of Chautemps in December 1937, of Daladier and Reynaud jointly, in November 1938 and in April 1939, that a little progress was being made, but only a little; the November 1938 report stated that French production was 25 per cent below the 1930 level, while that of England was 25 per cent above, and that of Germany 30 per cent above. We know that arma-

ment production remained restricted in the time of national peril; that, for example, the production of war planes fell to but twelve in a single month in late 1938, less than a year before war. With war came a statistical blackout and a vast mobilization that greatly restricted labor supply. We know that then great efforts were made in lengthening the work-week. We know that France met her final test equipped with but 2,000 tanks to Germany's 7,500 and 520 modern airplanes to Germany's 5,000. We know that finally the lights went out in the land of liberty, equality and fraternity, blown out in part at least by the wind of controversy instead of having been fed and fortified by production. Long, long ago, Herodotus noted that " for great wrongs great also are the chastisements which come from the gods."

The tragedy of France should teach certain lessons.

Labor policy must always consider the environment in which it is formulated. What is wise in one time and place is not well adapted in another. It is the frequent tragedy of noble causes that methods and objectives are formulated in enthusiasm for a specific goal without adequate consideration for other circumstances which are determining.

The French experience shows that protective labor legislation is not incompatible with increasing output; in fact to a point, shortened hours brought increased productivity of labor sufficient to offset the increased hourly cost in the early stages. In France, under the prevailing conditions, the reduction to 40 hours—and even less in some cases—apparently was extreme, but this by no means condemns all attempts to reduce hours. Perhaps in time the French economy could have adjusted itself to 40 hours, through rationalization, scientific management and added skill. On the other hand the somewhat longer hours, before Blum, were too long, as the rise in productivity when they were shortened demonstrates. For the French economy, then, as it was in the period 1936-1939 we get the impression that 40 hours was too short, while previous hours were too long. (Despite an eight-hour law enacted in 1919, less than half of all French workers previously enjoyed a 48-hour week. Average working hours in heavy metals were 56 a week.)

Looking elsewhere than France, rather clear signs exist of the same type of weaknesses in labor policies, if in less extreme form. Maximum production to provide the highest possible standard of living and safety for the whole population is too often not the chief consideration, the true interests of labor too often are lost in an illusory quest of the shortest obtainable hours and the highest obtainable pay regardless of maximum employment and maximum income. This certainly is not even intelligent selfishness.

A still larger point must be made. Labor policy abroad, and I venture to say at home, has been gravely hampered by lack of understanding between employers and employees and those who pass the laws. From this lack of understanding has frequently been born a lack of faith. Without understanding and faith and comprehension of a common objective, labor policy becomes only the exercise of force by one group over another—now by capital, now by labor. Labor policy in France and other countries has too often been largely that.

The most vital need of labor policy formulation today is the reëstablishment of understanding and faith, for in their absence the freedom of all may eventually, in one way or another, be lost.

Remarks

Chairman Wolman: The discussion of these interesting and valuable papers of this afternoon will be opened by Professor Douglas Brown, Professor at Princeton University and Director of that University's Section on Industrial Relations. Professor Brown!

Professor J. Douglas Brown: I would like, first, to say that these papers have shown us very constructively two major types of policy that should be followed; on the one hand, the fiscal policies, and on the other hand, the policies that have to do with production; then, they have questioned three major policies which should be altered, and, finally, we have been given an awful example.

Running through the papers of Mr. Magill and Mr. Slichter there are certain high points that I would like to discuss for a moment, and then offer an implementation.

We have to obtain adequate defense. We need fast production. That will require both enterprise and skill and effective labor forces. There is likewise, as Professor Slichter indicates, a probable need of diversion of consumption, that is, from consumption of non-essential goods and services over to the use of those same materials, or the same capacity to produce them, rather, for essential war purposes.

Further, we must avoid a rising cost of living, and at the same time, the snowballing of wages. Mr. Magill added that the Treasury will need to embark on a program of widespread taxation as well as increased borrowing.

I would like to add—and Professor Slichter intimated the same thing—that with all this, we will have to continue to afford protection to our workers, more particularly in that "morning after", when defense production ceases. It is for that reason that, thinking over various points such as those I have mentioned and such as those that I expected to be raised by Mr. Magill and Professor Slichter, I have set down a very brief proposal as an implementation in a small way of a policy which our government could develop to meet some of these particular contingencies. It is aimed, of course, primarily, as I intimated, toward the protection of workers at the conclusion of the defense program.

(Professor Brown then read his prepared paper.)

DISMISSAL COMPENSATION IN DEFENSE INDUSTRIES: A PROPOSAL

J. DOUGLAS BROWN
Professor of Economics and Director of
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AMERICA faces the probability of a post-defense relapse in production and employment for which it is none too early to prepare. In the absence of a state of war, the planned protection of both industry and labor from the possible hardships of such a relapse may do much toward releasing enterprise and manpower for rapid production of armaments. If we were at war, "the morning after" would seem of little significance compared to the immediate task of attaining victory. But being at peace, the enterpriser considering an expansion of plant for defense production can hardly avoid the depressing contemplation of idle capacity after armament orders cease. While at peace, the skilled mechanic who is already satisfactorily employed hesitates to give up his seniority rights to take the risk of a more or less temporary job in a defense industry.

To meet this situation the government has, after considerable delay, clarified its position concerning the depreciation charges which can be applied against new plant and facilities constructed for defense production. The government is assuming the total cost of plant construction in certain instances. By such means, the risk of the enterpriser in expanding production is reduced. But the wage-earner who gives up the expectancy of regular employment in a stable industry to help man new and expanded munitions plants has, so far, little protection against a risk which man for man is just as serious to him as to the wealthiest stockholder. The government has a great stake in encouraging him to take this risk. It seems, therefore, that the government should assist him in reducing the extent of the risk just as it has assisted the enterpriser to reduce the extent of his risk.

Unemployment insurance benefits, under existing provisions, seem inadequate to cushion the shock of post-defense lay-offs. Neither the amount nor the duration of the benefits now provided would be sufficient to carry the worker and his family through a protracted depression. Further, the worker, who may have moved hundreds of miles and across many state lines in securing defense industry employment, will not be assisted effectively by small weekly benefits spaced over several months. Rather he will require a lump sum of considerable proportions to finance the removal of his family to his former residence or to readapt himself to another job. Provided in this way, funds would serve to stimulate mobility and readjustment.

The problem, therefore, calls for another type of social security protection, not as a substitute for existing provisions but as a supplement to them. This type of protection, *dismissal compensation,* is neither new nor revolutionary. It has been provided by law for years in many countries the world over. It has been provided on management initiative or by trade-union agreement in hundreds of plants in this country over the years. It is the payment of a sum of money to an employee who is permanently dismissed through no fault of his own when jobs disappear due to economic or technological change.

In the present defense program, a plan of dismissal compensation could be developed along several lines. The following suggestion is but illustrative.

1. That in all defense contracts and subcontracts the government require the employer to establish a fund into which he will pay an amount equivalent to three per cent of the earnings of each employee working on government orders. The fund, under proper regulations, should be invested in government securities, preferably in bonds of small denominations.

2. That every employee working on a defense contract be encouraged to accept a payroll deduction of three per cent for deposit to his credit in the same fund. In return for such deposit, the employee will be eligible to receive at some future time both his own deposits and those made by the employer related to his wages as follows:

(a) On termination of employment due to completion of defense contracts as approved by the National Defense Advisory Commission. If the employee leaves employment prior to this time, both the employer's and the employee's contributions would be held to the employee's credit for reimbursal through government channels at the close of the general defense program.

(b) On termination of employment at any time due to death, superannuation, permanent disability or protracted illness as certified by the appropriate government agency.

(c) Payment to a worker from the joint dismissal compensation fund would be made in the form of baby government bonds previously purchased and registered in his name as rapidly as funds accumulated to his credit. On account of the automatic increase in value of these bonds both before and after transfer to the employee, their retention for provident purposes would be encouraged. Sums insufficient to purchase bonds would be paid in cash. Funds or securities remaining to the account of an employee who is not laid off at the close of the defense program would be transferred to him or, at his election, be used in the purchase of a deferred retirement annuity in his name.

The advantages of such a dismissal compensation program are many.

(1) More adequate protection would be afforded workers in defense industries.

(2) Employment in defense industries would be made more attractive in a manner which avoided the "snowballing" of wages.

(3) Purchasing power which workers might otherwise expend on non-essential products and services during the period of the defense program, when the productive capacity of the country should be diverted to essential products and services, is held in suspense to become available when its expenditure is both more profitable to the worker and more helpful in avoiding business recession.

(4) Meanwhile through the investment of dismissal compensation funds in government securities, the government obtains an additional flow of funds with which to finance the defense effort. The source of funds is appropriate in supple-

menting the other sources of funds available since the base is broad and directly related to the defense expenditures to be financed.

The administrative problems involved in such a program would be large but not commensurate with the great advantages to be gained. The problems foreseen are, largely, those of size rather than of inherent technical difficulty. Existing provisions covering defense contracts and existing machinery for the supervision of defense production afford much of the control needed. The handling of funds could be assigned to the Social Security Board working in conjunction with the Treasury. Of greatest advantage would be a growing acceptance on the part of both employers and workers that the benefits of such a dismissal compensation program would be well worth the effort and sacrifice. Through foresight, the worries of the "morning after" could be lessened and the same mental energy applied to the job at hand.

DISCUSSION: THE BASES OF AN AMERICAN DEFENSE POLICY—UTILIZATION OF PRODUCTIVE ENERGIES

CHAIRMAN WOLMAN: Before closing this session, we have ten or fifteen minutes left for informal discussion from the floor, under the five-minute rule.

MR. FRANK H. SELDEN: Mr. Chairman, there is one item in this discussion that it seems to me we have been overlooking. I would like to call your attention to it in the moment that I have.

We have not given sufficient attention to the fact that the United States is more highly developed in scientific industry than any other nation. When we recognize that fact, then we shall recognize another fact, that the war which is going on today and the war which we fought to make the world safe for democracy were caused by the irritations resulting from other nations attempting to compete with us through industries of the craft type.

Today, Germany is fighting this war, which we are afraid we shall be pulled into, because she has attempted to attain an industrial development through craftsmanship processes (which she can never attain in that way), which will enable her to compete with America in our highly scientific industries. Consequently, she feels encircled; she feels that somebody is trying to circumscribe her and keep her down.

It must be nearly forty years since one of America's army officers was sent to Europe to study the effect of American machinery in Europe. He found some factories in Germany attempting to make machinery in competition with our machinery, though every machine in one factory was imported from America, and they were trying to operate them on the basis of craftsmanship methods. In France he found two planers, a Gray planer—I imagine that does not mean much to you people—made in Cincinnati, and a German imitation of the Cincinnati planer. The Germans had obtained a Gray planer, had taken it apart and were trying to make one like it. As a result there were two planers in France, the American Gray planer and the German Gray planer, but no Frenchman would work on the German planer if he could have the American machine to work on.

One of the important problems in this whole business of war is this matter of scientific industry. What is going to happen in our relations with the South American republics, if we continue to jockey with them for trade and they continue to try to make things to ex-

change with us, as they are doing today, with almost a complete absence of scientific industry? In its preparation, at the present time, the United States needs to help raise the standard of industry in other nations, so that they may develop their industries in harmony with their natural products and their native talents, and thus produce articles which they can sell to us as a complement to our industry instead of competing with it. When we do that, we shall not need to prepare to build great armament.

CHAIRMAN WOLMAN: Thank you! Is there any further discussion?

PROFESSOR CARTER GOODRICH: Mr. Chairman, I should like to add one comment to the subject of Mr. Woodward's paper. Any temptation to quarrel with details in it is very much diminished by the admirable care with which he warned us against drawing morals too readily from one environment to another that is different.

Reference might be made to the extent to which working hours were actually lengthened by exceptions to the 40-hour decrees considerably before the present war broke out, and to the fact that the limit was lifted to 72 hours when the war did break out. But what I want to do is to pick up one point which Mr. Woodward made, and go on from that to a certain contrast.

Mr. Woodward commented on the seriousness of the strikes in the period to which he referred. I think it is possible that the impression he gave exaggerates the amount of actual working time lost. There was perhaps more drama to the strikes than actual loss of working days on a large scale. But I think certain of the social consequences were fully as serious as he indicated.

You will recall that about ten months before the war broke out, there was a brief, unsuccessful, in terms of interruption of output not very important, general strike, called by the C.G.T. In the allotment of praise or blame for that situation, I am not interested, but one consequence of the cleavage, illustrated and intensified by that clash, was that for the next ten months there was virtually no contact between the French government and the leaders of the French labor movement. There never had been very well-established contacts between the leaders of the French labor movement, take it by and large, and the French employer.

When war broke out, as Mr. Woodward said, there was a great attempt to repair the damage of the past. The leader of the C. G. T. together with the principal leader of the French employers signed an agreement to collaborate fully with each other and with the government during the war, for the purposes of the war effort. That

agreement, I have no doubt, was sincerely met, but in actual practice it remained a paper agreement at the top. There was very little observance of it down the line in particular industries and among particular groups of workers and trade unions.

The striking contrast seems to me to be in the case of Great Britain, where the collaboration of this sort was agreed to in similar language, but where there had been long practice in just that sort of thing and where the collaboration during the opening months of the war, and even before the war broke out, came down into the matters of detail in particular trades and particular work shops—a kind of collaboration which was well established before the governmental changes of last May, but which was intensified and dramatized by the coming into the Cabinet of the direct representatives of labor.

It seems to me that part of the moral of the French case can be drawn—and it is not irrelevant to our environment—in terms of the contrast between well-established collaboration built on the development of collective bargaining in the British case, and an attempt to extemporize that type of collaboration, when it was too late, in the case of France.

Mr. S. Stanley Kreutzer: I would like to throw this one at Mr. Brown. Professor Slichter feared what would happen to the margin of efficiency of those industries that could be used for non-defense purposes as well as defense purposes, after the defense program was over. Do you think that the problem would be solved, if the government were to build these plants and remove them from the market after the need of the defense program has passed?

Mr. Brown: I do not think the government could do that for anything like a large proportion of the necessary plant capacity, but I do think that the policy which is being followed, that is, of building plants, say, for smokeless powder or for certain other essential military products, is a sound policy, to the extent that those plants will be taken out of use following the defense program and maintained as stand-by defense equipment.

In other words, we shall probably need stand-by equipment, just as in the case of a fire department. It may become necessary, in the world which we are facing today, to produce certain equipment with the expectation that it will become stand-by equipment after the particular, immediate need is gone.

Mr. I. Sitt: Is the problem even deeper, Mr. Brown? Do you not think that labor, perhaps capital, when defense is over, will say, "Well, we've been able to organize for defense; we've got to organize for peace"? Perhaps President Roosevelt was reëlected on

that very basis, and with that thought in the back of people's minds. You are trying to liquidate defense by one method or another.

MR. BROWN: I think one of the biggest jobs we shall have to tackle, as I suggested in my comment, is that of planning for the peace-time adjustment along with production for defense.

Professor Slichter intimated that in several ways, and Professor Magill, likewise, in developing a tax program on a "pay as you go" basis. It certainly seems to me that we cannot afford to take the risk that we took in 1917 and 1918. We were lucky in 1917 and 1918. Take, for example, the Liberty Loan campaigns in those years. They did a great deal to help cushion the shock in 1919 and 1920, because, wittingly or not, we were building up a backlog of small investments throughout the entire working population, so that when layoffs occurred in 1919 and we began hitting the trough in 1920 and 1921, there were a lot of small securities tucked away in bureau drawers and banks and every other place, that began to come out. That was lucky. It may well be that this time we will not be as lucky, unless we do some planning.

As far as equipment is concerned, one of our great hopes, of course, is that this very progress of science and technology, which is almost poured upon us to meet the defense needs, will of itself develop products. One particular concept that has been passed on to me by an engineer is that in meeting the needs of a light, powerful, aviation motor, we have developed more power in terms of weight than ever before; that may mean a revolution to a certain extent in our whole transportation power industry.

MR. SHERMAN: I would like to ask Mr. Richberg a few questions. He has indicated that the principle of voluntary coöperation has been violated by governmental acts. First, I would like him to give one or two instances in which the Securities and Exchange Commission has utilized its vague and undefined powers to control business; and secondly, why have we not—

CHAIRMAN WOLMAN: I am afraid that we do not have time for too elaborate a question. Will you let it go at the first part?

MR. SHERMAN: Well, I would rather that he answered this question. How does he reconcile his position on the anti-trust acts, that they are anti-business, with the fact that Professor Seager once stated that the anti-trust acts, whatever their original intent, had been largely converted to the business men's own use. I believe that Professor Seager stated that 90 per cent of the cases under the acts were originated by business men against their fellow business men.

MR. RICHBERG: Perhaps I can answer very briefly both those questions.

As to the Securities and Exchange situation, in order not to go into a great deal of detail I had to make a rather generalized statement; but it was not on the basis of something read; it was on the basis of actual experiences that many of us have at the present time with the administration of the Securities and Exchange Act. Anyway, there is no question whatsoever that the Securities and Exchange Commission is undertaking to dictate management policies and financing policies, quite regardless of the fact that it has no such specific power in the law.

This is admitted; and one of the current statements of the Securities and Exchange Commission is that it will not know what its powers are until the court defines many vague expressions in the law. Therefore the Commission is going out to seek as much power as possible by exerting itself to enter orders of doubtful validity, in order to determine whether it possesses such powers. That is the exact situation today in relation to corporate reorganizations, affecting a large number of corporations, and in relation to the enforcement of the Holding Company Act, which affects many public utilities of that variety in this country.

As I say, I can give you only a general statement, because I would have to go into details of case after case that cover the point; but I do not think that any well-informed person, either litigating with the Commission or on the Commission's staff, will question my generalizations.

As to the anti-trust laws, the difficulty is that the distinction, which I have been trying to make here, has not been made at all, namely, the distinction between the recent enforcements of the Act and the intention of the Act to stop monopolistic restraints of trade which are artificial controls of production and prices. In that field, of course, business men have complained against their competitors. That sort of litigation has arisen in the Federal Trade Commission and in prosecutions through the Department of Justice, because of complaints of business men against what they call monopolistic practices.

But there is also another factor that enters into that sort of complaint. Perhaps we all seek alibis, and I do not want to stigmatize any particular class, but certainly business men who do not succeed are quite prolific in their alibis for their failures. An alibi always available to any business man is the unfair competition of his competitors; and, therefore, suits are started before the Federal Trade Commission and prosecutions instituted by the Department of Justice

on a multitude of complaints, which frequently amount to nothing more than complaints of an effective competition.

But since the theory of the law, which is now particularly acceptable to the Department of Justice and which has been supported recently by one or two decisions of amazing sweep from the Supreme Court, is that any restraint of trade, no matter how beneficent its purposes, is a violation of the anti-trust laws, the field is wide open for either the Federal Trade Commission or the Department of Justice to insist on industry complying with its ideas of what are proper trade practices, either through orders of the Federal Trade Commission or through consent decrees obtained by the Department of Justice. Thus there is insistence upon reorganization of existing practices of business, because it is quite impossible in this very complicated modern industrial system for any three or four men to get together to do anything to help protect their industrial situation without being subject at least to an accusation that they are combining in restraint of trade.

Of course, the most obvious example is the one I have referred to—the oil industry situation, in which we have state law after state law attempting to restrict the overproduction of oil. If you take a state like California, where there is no such state law, and if the oil companies themselves combine with the producers and refiners in a program to attempt to hold down the production so that the market will not be flooded with wasteful oil production, then there comes immediately an attack of the Department of Justice, as in recent cases brought on the Pacific Coast.

What I am trying to point out is that we have no distinction in our present enforcement of the anti-trust laws between combination and coöperation for admittedly beneficent purposes, and combination or coöperation among business men which has some evil effect on production or price. Well, it is quite impossible to imagine any concerted action which does not have some fairly immediate or at least some remote effect upon production or price. If you will undertake to read the decision of the Supreme Court in the Madison oil case, you will find the sweeping doctrine is laid down that it does not make any difference how beneficent the purposes of the coöperation are; if in any way it affects production or price, it is an unlawful restraint of trade.

I am simply saying that, from the standpoint of the modern industrial world, to destroy every effort of coöperation between business men, either in their own field or in vertical coöperation through the fields of distribution, makes this system substantially unworkable. We cannot go back to the old disintegrated competitive economy of small units where hundreds of thousands automatically determined

trade conditions. The influences of big organizations are too powerful today. They have too much effect; and their competitions which exist, not only within one trade but between trades, for the consumer's dollar, as a matter of fact have too powerful repercussions and do too much damage to our entire economic system to permit us forever to go on under the theory that we cannot have any coöperation. The result, inevitably, must be a government control whereby the government organizes and orders the coöperation which it now declines to permit on a voluntary basis. I say that that is the end. When you reach that ultimate result, you have reached the end of a system of free enterprise, a truly competitive system.

CHAIRMAN WOLMAN: The time has now come to adjourn. I know that you will all join me in cordially thanking our speakers of this afternoon.

PART III

THE DEFENSE OF THE UNITED STATES

INTRODUCTION *

THOMAS W. LAMONT, *Presiding*
Trustee of The Academy of Political Science

THE members of the Academy will be in order!

Mr. Secretary Patterson, Mr. Sloan and other honored guests: A greeting to you and to all the members of the Academy and their guests here this evening! We have a very full meeting tonight, something like eleven hundred people, I am told, and we are delighted at the interest that is being shown in this general topic of "Defense for America".

We want to thank most cordially the guests of the Academy who have made the sessions today so notable. Particularly I want to thank Wesley C. Mitchell, the President of this Academy, who has given such devoted service to it. (Applause) Some of us do a little pinch-hitting from time to time, but Mr. Wesley Mitchell, Professor of Economics at Columbia University, Director of the National Bureau of Economic Research, a real economist and one whose name sheds luster upon the Academy, is the one who is always here when needed, always serviceable and useful. He gives unstintedly of his time and energy, and helps us in every way possible.

These gentlemen here—I will not ask them to rise, but I will mention those who are here—delivered very striking papers this morning and afternoon: Professor Leo Wolman presided at the session on the topic of "The Utilization of Productive Energies"; Professor Roswell Magill, former

* Opening remarks at the Third Session of the Annual Meeting.

Under Secretary of the Treasury, gave an excellent talk on "Financing Defense"; Professor Sumner Slichter of Harvard University spoke on "National Labor and Production Policies"; we had a paper on "Legislative Impediments to Production", by the Honorable Donald R. Richberg, and one on "Labor Policies Abroad", by Donald B. Woodward. I thank them again.

We welcome, too, the favoring presence tonight, of Mr. Owen Young, and of your old friend and mine, Monsieur Georges Theunis, former Prime Minister of Belgium and now one of those who are faithful to the absent government of Belgium which is carrying on from London. (Applause)

THE FAR EASTERN THREAT

A Friendly Caution to Japan

THOMAS W. LAMONT

SIX weeks ago Japan announced its entry into the triple Axis with Germany and Italy. Therefore I am going to say a few words as to the Far East, and as to how the situation there bears upon the country's urgent desire to keep out of war. On official or semi-official visits to the Far East I have made many friends in China and scores in Japan, some of the latter, because of their liberal views, having alas! met death at the hands of assassins. In what I now propose to say my intention is anything but provocative. It is friendly. But in a world where America is compelled to defend itself against the diplomacy of pure force, it is essential for us to face the facts.

Japan's announcement on September 27 last of a ten-year offensive and defensive alliance with Germany and Italy definitely makes Europe and the Far East a single, great struggle. The conflict becomes truly a world war. In inducing Japan to enter the Axis, Germany, the leader of the enterprise, had of course planned to throw us Americans into a panic, to turn our eyes from the Atlantic to the Pacific and thus to slacken our aid to England.

America's Answer to the Challenge

The moment, however, that America met Japan's treaty announcement by recalling its nationals and showing no intention of giving way to the jitters, the Japanese dropped their bellicose attitude. They saw plainly that our government intended to handle the situation with great firmness. The fact of course is that the last thing the Japanese people want is war with the United States.

Since Commodore Perry first opened Japan to Western civilization back in 1853, except for the unfortunate Japanese exclusion regulation fixed by our Congress in 1924, America's

attitude toward Japan has always been one of friendliness and growing commercial and cultural relations. Not only did American investors assist Japan materially in public utility development, but, following the terrible earthquake and fire of 1923, the American people showed the most notable sympathy for Japan. The American Red Cross sent out a contribution of $10,000,000. And Americans, with the warm approval of our own government, lent great sums to the Japanese government to help their destitute people and to aid in rebuilding their cities. The aid then rendered was a life saver for Japan's economy and for her people generally.

Japan Goes Militaristic

But about ten years ago, a grave political change came over Japan. That change has already laid heavy financial and economic burdens upon the whole Japanese people. Just as in the case of Germany in Europe, Japan had every opportunity, because of its propinquity, to gain through peaceful, commercial penetration an immense trade with China. But, also like Germany, the dominant power in Japan would not be satisfied with natural trade development. It was bent on the exclusion of Western trade and influence from China. It was determined on conquest. The first step was the seizure of Manchuria by the army in 1931.

Then, three years ago, against the country's best traditions and to the dismay of many of its people, the militarists embarked upon the hopeless adventure of trying to subdue 400,000,000 people in China. Thus I ask my Japanese friends to listen to the words that in 1920 old Prince Yamagata, recognized perhaps as Japan's greatest soldier and statesman since the rebirth of the nation in 1868, spoke to me at his villa just outside Tokyo: "Never", said he, "must we attempt the military conquest of China. The attempt would fail and we should lose the friendship of America and England." Has the prediction of the old Elder Statesman begun to come true?

Dwindling Financial Resources

In the last three years the Japanese armies have wrought widespread destruction on the countryside of China, have brought about the death of millions of innocent Chinese who have met with calm courage fate dropping from the skies. Yet

the Japanese are still far away from their goal. Their gold supply has been dwindling, their taxes and their public debt have taken a balloon ascension, their farmers and industrial workers are burdened with increasing hardships; and, so far as I know, among Americans they have aroused feelings only of indignation and horror for their ruthless war upon the steadfast Chinese people.

American Government Policy

Meanwhile, the American government's policy has been cautious, patient and forbearing. Japan has broken wide open the Nine Power pact to respect China's territorial integrity. She tried to exclude our trade from Manchukuo and paid no heed to Washington's protest. It was only successive breaches of international good faith that finally led our government to suspend its commercial treaty with Japan. Washington has undoubtedly hoped month by month that Japan would change her course. But this new triple Axis treaty shows conclusively that she still pursues the same tactics. In 1937 when Japan sent her troops into North China, the government excused its action by declaring that it was taken only "to preserve the peace of East Asia." Now the Tokyo government declares the Axis treaty as designed to establish, in Mr. Hitler's favorite phrase, "A New Order in Asia".

In this last fateful decade the American government has through repeated statements made clear that territorial ambition in the Far East has no place in its attitude. Even the Japanese must realize that the American people warmly support their own government which is trying to apply toward all countries of the world, including Japan, those principles that tend to stabilize international relationships, never to submit them to the arbitrament of force.

America's Safest Course

What course, then, can America best adopt to secure her safety on both the Atlantic and Pacific, and to lessen the chances of our being forced to enter armed conflict on either ocean? First, then, we should realize that as long as Britain holds out, Japan does not dare attempt much. Indeed, British resistance on the one hand, and at the same time the maintenance of her control of the Atlantic, have become the pivot

of American security on both sides of this hemisphere. Therefore, constantly increasing material aid to England is the number one route whereby Japan's threat to America can be rendered null and void.

Renewed Help for China

What next? Continued and additional help to China. The Administration has already established the principle of extensive credits to China. That aid has been an excellent response to the temper and wishes of the American people. They have no desire to become involved in Far Eastern conflicts 7,000 miles across the ocean. But they see clearly that one way to lessen such chances of involvement is to give support to China in its heroic effort to maintain its independence. What China sorely needs is to have that support take the form of material supplies and planes as well as of credits.

Question of Trade Embargoes

Third, as to the question of tightening America's trade embargoes upon Japan: a private citizen not familiar with all the factors would not for a moment presume to suggest detailed measures to the Administration whose foreign policy along this line has been so carefully developed. The fact is, however, that certain notable inconsistencies and omissions exist in our government's semi-embargo policy; and in practice there is nothing quite so ineffective as half-way sanctions. They thoroughly exasperate the people against whom they are directed and yet accomplish no results. The embargo policy appears to have waited upon the development of public opinion here—and properly. Now that the Axis treaty, so evidently directed against the United States, has crystallized that opinion, perhaps the embargo policy will find further development. No doubt our government will, if and when it deems the time has arrived, take further steps.

Business Anxious to Coöperate

I may say that in the matter of trade restrictions, my observation leads me to the quite definite belief that our government will find no possible obstacle in the attitude of American exporters or industrial interests. Some people seem to think that in commercial circles particular trade interests always

come first. On the contrary, in a situation like this in the Far East our government has only to make clear, through appropriate announcement, what its policies are, and those policies will immediately be followed by the American business world. It is not for the business man to attempt to initiate the nation's foreign policies. But if Washington decides it to be essential to our defense program not to ship to Japan material for bombs, or if further it decides that Japan's available exchange should be reduced by restricting our Japanese purchases, American trade interests will not fail to coöperate.

Question of Naval Disposition

Fourth, from our public prints it seems that some Americans favor sending additional units of our naval and air forces to some point or points in the Far East. Without regard to our responsibilities to the Philippines, whatever may happen to the Netherlands East Indies or to Singapore is, of course, of serious economic and strategic interest to this country. This our government has already made clear in recent public statements and, I understand, in communications to the Japanese government which point out the importance of preserving the status quo in important colonial areas, in both the East and West.

I come now to Japan's case. Like many others who have admired the extraordinary accomplishments of the Japanese people in peace-time pursuits, I have earnest desire that their aggression should not drive my own country into a position of open enmity. That wish is strengthened because of the fact that for years I was personally active, with many others, in carrying through plans of friendship for, and material aid to, Japan.

European Allies Will Give No Help

I ask, then, what possible gain Japan can expect to derive from this new Axis treaty? Germany presumably persuaded Japan into the Axis by holding out the promise that England would be downed, and America frightened and bullied into appeasement, thus enabling Japan to have control of the " New Order in Asia ". But surely Japan must realize that if the time comes when she needs help, Germany and Italy can and

will afford their Far Eastern ally no aid whatsoever. They will encourage Japan to do all she can by herself to irritate and damage American and British interests, but that will be the extent of their aid. Those German and Italian well-wishers will stand strictly on the side lines and those lines will be 13,000 miles away.

A Time to Seek Composition

Japan has, in fact, got all the worst of the bargain with Germany. So it is high time that she had regard for her own diminishing financial strength, and that before the country's economy meets disaster she should turn back from the inevitable road to ruin. Upon this road Japan has been embarked for almost a decade. Is it too much to expect that she should begin to take the whole situation more seriously and try to understand its realities? That means a genuine endeavor for peace.

Many Grounds for Adjustment

The task of composition between Japan and China is to be sure a most difficult one, not only in its fundamentals, but in its face-saving necessities. Yet in every region of relationship save that of political domination, there should be final grounds for adjustment between Japan and China. In the written language, in interchange of trade—Japan primarily industrial, China agricultural—in forms of religion, in culture and in art, there is every reason why the propinquity of the two nations should be utilized for close and lasting relationship. But Japan must abandon once for all in the Far East the Nazi theory of racial superiority, and the idea of "Asia's New Order". Japan must relinquish her idea of controlling the coastal cities in China. The handwriting on the wall has been made clear enough by the vigor of China's continued resistance and counter attack. Japan, too, must understand the new China, for years gradually emerging and crystallizing from a people into a nation. Japan must realize that China is bound to become and to remain free and independent; that she has a great destiny before her, one more significant even than her history of 3,000 years; that she desires friendship not enmity with her more aggressive neighbor.

Caution, Not Appeasement

I am not proposing any form of American appeasement toward any part of the Axis. Let that be made clear. What I am doing is to sound a friendly but urgent caution to that old friend and now new Axis partner, Japan. Perhaps I am quixotic, a mere business man, to speak in these terms to Japan and to the many Japanese with whom I am acquainted, some of them in high place. Yet when I stop to think of that rugged, beautiful land on those scattered islands, of the intense industry of the people, of their extraordinary loyalty to their Emperor, of the culture which they have cherished over their 2,600 years of established government, of their endeavor to adapt the best things from Western civilization—when I have seen all these things before my very eyes, I can but have pity and concern for the Japanese people themselves plunged into this tragic situation; and grave misgivings for their future under rulers who have led them, perhaps half blindly, so far astray from the paths of safety and the community of liberty-loving nations. It is because of my sincere friendship for Japan and the Japanese people, because of the gratitude which they always expressed for the great material help which Americans rendered to them in their time of need, that I dare not keep silence when I see Japan continuing to pursue policies fraught with grave peril to her and to our relations with her.

China's Heroic Resistance

What the attitude of the Chinese may be I do not know beyond what is reported in the public prints, namely, that they intend, with the same invincible determination they have already shown, to drive the invader from the soil of China. But as for Japan, her hostile attitude toward America and Britain, her continued but weakened effort to dominate the Chinese—these are policies which can still be changed. The time is not too late for the Japanese to seek peace and pursue it.

And so I end as I began. For America our only effective answer to the Far Eastern threat must be: First, to Britain increasing help, help in every material form possible. She is fighting for life, for the freedom of the seas, and so for the

defense of this hemisphere. Second, to China more material aid in her heroic struggle for independence. If what we want is to keep out of war on either ocean, the pursuit of such vigorous policies is our best hope and means for attaining that end. (Applause)

REMARKS BY THE CHAIRMAN

CHAIRMAN LAMONT: I must now pause for—not for station identification, no (laughter)—but for a little breath, before I introduce my good friend, Mr. Alfred Sloan of the General Motors Corporation.

In introducing Mr. Sloan to you, I am presenting not a stranger but a friend. Some of you who are not personally acquainted with Mr. Sloan may think of him primarily as a leading industrialist of this country, of course in his line the greatest industrialist that the world has ever seen. I do not have to dilate upon his achievements in his particular field. I should, however, like to recall to you and to his many friends here just a word as to those personal qualities which I think have been so potent in placing him where he is and making him what he is in our community. I am speaking from intimate knowledge when I point out to you the fact that not only is Mr. Sloan a great organizer, but he has that happy faculty of making all the members of his vast organization feel that they are more valuable than he is. He gives them all the credit and takes none for himself. That is a great source of strength in his own industry and in all his contacts. He has the greatest possible interest in the education of young children. That, I suppose, is his one hobby. But whatever he talks about tonight, I am sure it will not be on his hobby, because he is scheduled for the subject, "The Economic Aspects of American Defense". I am sure it will be of immense interest to you, and I ask you to welcome Alfred P. Sloan of General Motors Corporation.

(The audience arose and applauded)

THE ECONOMIC ASPECTS OF AMERICAN DEFENSE

ALFRED P. SLOAN, JR.
Chairman of the Board, General Motors Corporation

IT is a privilege to join with you this evening in the celebration of the sixtieth anniversary of the establishment of your distinguished organization. Your efforts could not be directed to a more vital national need. It is even more important today than at any previous time in your long service to the community. On the one hand the identification and evaluation of the complex, continually changing and powerful forces that comprise the economy challenge the imagination and intelligence of the best among us. On the other, there can never be a sufficiently broad understanding of the laws governing such relationships.

Far too few realize the significance of the economy in its relation to the daily lives of every one of us. Far too many look upon such problems as purely academic in character. The economy might be defined as our national group of activities relating to the production and distribution of wealth. The wife of our most humble worker, in buying the necessities of life, is directly involved. What she pays and what she has to spend—prices and wages—are fundamental problems of the economy; and they are vital problems for her. Thus, we are dealing here with the very elements of our social structure; and it does not take much imagination to appreciate the impact of what we do, or fail to do, upon the destinies of the nation as it reacts on the lives of the multitudes and finds expression within the political arena. That is *why* these economic relationships are so very important.

Out of the debris of the recent political campaign, controversial and acrimonious as it was, stands a nation united on one basic objective, the American way of living must be defended—and at any cost.

A columnist recently made the observation that there was no such thing as the American way of living—there were as many different ways as individuals. I do not agree with this. To my mind, the American way of living is a very concrete thing. I visualize the typical American worker in his home. He is surrounded by his family. He has an automobile in his garage. He listens to his radio. He enjoys in full measure the many wonderful things that American free enterprise has made available to add to his comfort and expand his horizon of observation and opportunity. I visualize him again at his job on the farm, in his office or at the factory, convinced of the fact that through diligence and hard work he has an opportunity for greater accomplishment, with an increased reward, as so many have enjoyed before him.

But, you may ask: What of the millions who have far too little? I hold that the principles and processes which have done so much for the typical American worker will, through the progress of time, with the continued advancement of scientific knowledge and the application of economic intelligence, raise the standards of those who now have too little. After all, considering the passage of time, it is not so long ago when kings lacked what workers now enjoy, when no one had more than those who now have the least.

But again you may ask: What about the millions of our people who have been without employment for so many years? That is the American system of enterprise in reverse. It is the inevitable consequence of our own acts. Chronic unemployment in our economy is a political disease. It is not an economic disease. There lies the remedy.

Now, why is it necessary to defend this American way of living? Because it has been challenged—both from within and from without. Challenged from within, due to the fact that political leadership has supported policies that have interfered with the normal processes of the economy to the extent that its orderly expansion, so essential to any virile movement, has been seriously prejudiced. Progress has been frozen. Lack of confidence in the future of the free enterprise system has developed. Challenged from without, due to the fact that in recent years the competition of other economies raises the question as to which offers the greater effectiveness.

But, these are economic considerations. There is danger in the possibility of a different form of attack—a military attack. The outcome of war today depends upon technological superiority. The nation that is able to produce most effectively—and I use that term in its broadest sense—is the one least vulnerable to attack; and the maximum effectiveness demands the highest standards of technological progress.

Now, what does this mean? To illustrate: It means airplanes of superior speed, superior maneuverability, superior carrying capacity, superior radius of action, equipped with instruments of superior effectiveness; and all in greater quantity. It is a dual problem. It means that every instrument in the whole category of defense equipment must embody the most advanced ideas that the most aggressive research, engineering and production processes make possible. Likewise, every such instrument must reflect in its design the maximum effectiveness from the standpoint of its adaptability to the essential processes of mass production. If America is to live in an armed world—I fear it must—the integration into our defense of the creative forces of our system of enterprise, in terms of research, engineering and production, is of prime importance.

Hence it is clear that the keystone of our defense of the American way of living today, tomorrow and always, in the world now existing, is the strongest, the most virile, the most aggressive economy that the creative genius of America can devise. Such an economy finds its strength in the productive power of its industry, its plant, its equipment, its workers, especially its technicians and management—all supported by the material resources which enable it to develop the necessities of defense as well as the needs of peace. Its power depends, in the long run, upon scientific progress and its aggressive use by management in the development of always more efficient instruments of production and more effective products to produce. That is why war is a "technological" competition. I can conceive of a weak defense based upon a strong economy. I cannot conceive of a strong and competitive defense based upon a weak and declining economy. That is impossible!

Time does not permit an adequate appraisal of the forces as they exist in the economy of today. The political philoso-

phy of recent years seems based upon the doctrine that accomplishment in an important way is a social liability. The result has been that the economy has been restricted in its essential development so as to throw upon the enterprise system a burden of continuous unemployment, increasing indebtedness, increased taxes, higher prices, curtailed productivity, a reduced standard of living, to say nothing of a nation having lost confidence in its own virility, uncertain as to the possibilities of its own future.

Now that the present political régime has been reëstablished in power, let us hope that industry can expect more than a "breathing spell" necessitated by the program of national defense. Ironically the very individuals, the very industrial organizations, which, during the past few years, have been under political attack and held up to public scorn as enemies of the public interest have now become vital instrumentalities of national defense. The nation turns to them to protect itself against aggression.

The motivating force leading to economic and social progress as well as the most effective national defense—and the underlying concept of any well-ordered economy—is *work*. There are only two ways our standard of living can be advanced: more work or work more efficiently performed—or, better still, both. These are the *only* true ways. As long as we work less, as long as we discourage technological progress, as long as we believe in something for nothing, as long as we think we can raise the standard of living by legislation, without work, we shall always be in potential danger. Our weakness today lies primarily in the lack of intelligence with which we are discharging our great national economic responsibilities and secondarily in the lack of understanding of our people as to where their true interests lie. Our strength lies in the abundant natural resources and the essential materials with which our country abounds. In our great industrial organizations, our scientists, our technicians, our creators and producers. In those who believe in order and efficiency. In those who believe in the true way, even though it may be the hardest way.

The economic effect of our program of national defense is of transcending importance. It serves to counteract the de-

flationary forces already discussed. The energizing power of our system of free enterprise in ordinary times is the profit motive, together with the ambition for success and accomplishment. The energizing power of the national defense effort stems more importantly from that most powerful of all human emotions—protection of national life. An entirely different group of economic forces now prevail. They must be identified and appraised if we are to attempt to evaluate the economy during the next two or three years. But those factors which have so beset us and impeded our progress during recent years are yet to be reckoned with. They are still with us and will return with accelerated force when the present emergency is over.

The economy should be directed now toward making America impregnable against attack. Important questions arise—to become increasingly important as the progress of the program accelerates. Will it be possible to maintain normal productivity incident to the peace economy and at the same time add the essentials of national defense? Will it be possible to increase our normal productivity of consumer goods in step with the increasing purchasing power made available by the artificial stimulation of enterprise? Will it be possible to maintain order in the price structure to the end that we may carry our burden and avoid an inflationary movement? What about the regimentation of industry? How will the standard of living be affected? What are likely to be the forces in which the economy may be involved on the liquidation of the defense program? What will be the economic consequences of the post-war settlement?

Now, what are our resources?

An adequate supply of most of the essential raw materials, of satisfactory quality and in almost unlimited quantity, large reserves of idle production capacity, and the ability to increase capacity—an unrivaled mass production technique—relatively efficient instruments of production, an industrial management with demonstrated ability to cope with production problems of great magnitude, an adequate army of efficient and patriotic workers, and, as a catalytic agent, billions of idle money.

Now, what are the demands?

They emanate from three sources: the normal demands of our peace-time economy; the abnormal demands of our defense needs; and the abnormal demands incident to the defense needs of Great Britain—which it is in our interest to support, and in an expanding way. Superimposed upon these specific demands is the additional demand for consumer goods incident to the increase in purchasing power available during the emergency.

Any program of war or defense, anywhere, involves two phases. First, production acts to take up the surpluses in the system. The second begins when a state of full employment and maximum capacity of existing facilities finally is reached. Our economy today is in the first phase. The effect on the enterprise system is first a gradual and then an accelerated expansion of activity spreading out with increasing force from certain motivating centers until it is reflected in greater or less degree throughout the whole area. Payrolls increase as we pass to longer hours. New payrolls are created. The most important impact is felt in the durable and capital goods industries so seriously restricted for so many years past. As this process continues, by far the great majority will be convinced that the good old days are with us once more. The defense program promises a synthetic prosperity for the next two or three years.

Let us consider for a minute our productive capacity in relation to the demands. Unfortunately, little is available for our most vital defense needs. Plants for the production of peace requirements have scarcely any adaptability to defense necessities. The American industrial machine is not designed to produce the things that are now most vitally needed; and little flexibility exists. That is inherent in our system of mass production. Our available assets for defense are management, technical skill, efficient workers, ability to organize and capacity to construct such different instruments of production as now are needed. The problem is new plants, new machinery, special tools required by the new designs, the necessary personnel and its evolution into effective working organizations. At the best, a year is needed between the inception of a defense project and production, months more to develop the maximum capacity and efficiency. The opportunity to expand existing

facilities to meet the defense demands is limited to facilities already existing to make the same specific things. In the case of many of the vital things, existing capacity falls far short of the needs. Such are the realities.

I make these observations to emphasize the point that nothing can be gained in the first phase, should we curtail the production of things incident to our normal needs for the sake of accelerating the production of materials incident to defense until such production is being delayed by peace-time needs. There is little now with which to accelerate. Watchful waiting would be the result. Millions, directly and indirectly, would be thrown out of work temporarily. The forces within the economy would become unstabilized; and further, the most acute or vital defense needs lie in a very narrow area of industrial activity. Airplanes, airplane engines and ships of war undoubtedly concern us the most. They, of course, must have the right of way.

It would appear that the total annual expenditures for defense purposes are likely to average during the next three years somewhere between five and seven billion dollars. The problem is *not* for how *much* we contract, but how *fast* the contracts develop into the production of raw materials and the progress of those materials through our processing plants, as measured in terms of payrolls and services as well as in other economic forms. A five to seven billion dollar a year program, taken by itself alone, is not of sufficient magnitude even to absorb entirely our idle resources. The total national income at the inception of the program was approximately seventy billion dollars a year. In all probability we could increase that, at present price levels, to at least eighty-five billions. It seems clear, therefore, that there is not in sight the absorption of our full productive effort in terms of the maximum capacity of men, materials and capital. Even considering the number of men to be placed under arms, a general shortage of labor resources does not appear likely in the near future. Even further expansion of consumer goods is possible, thus capitalizing expanding purchasing power without interference with the main objective of adequate and speedy defense.

These, in general, are the facts. In addition, America today is working a shorter number of hours per week than any other nation—certainly any other involved in war or defense. Output can be increased 20 per cent by working six days a week in place of five days. It seems clear this should be the first step, if the point is reached when the slack of unemployment has been taken up and the increasing speed of industry has been utilized to the fullest practical extent. The penalty for overtime should be cancelled during the emergency to encourage a longer work-week.

It appears clear that we can and should, in our own self-interest, impose the new set of demands upon the existing ones. We should expand existing production in harmony with the increased purchasing power available, to the point of full productivity. We should increase the hours of work per week, should the necessity arise. Under such a program, the standard of living could be maintained. It would, in all probability, be somewhat advanced during the period of emergency. The burden of unemployment, such a drain on the economy, would be relieved to offset, in part, the cost of the defense program itself. Taxes and other revenues of the government would be increased. In other words, we should meet this emergency by expanding the production of goods for both peace and defense rather than by unduly diverting the production of usable goods to the implements of defense.

Such a procedure must recognize that shortages will appear, in both materials and labor. Priority should be adopted in such cases. It is impossible to attempt to forecast these factors, because the full scope of the defense program does not yet appear to be fully established. The intelligent approach is to adopt such economic policies as are clearly sound and desirable and, through evolution, deal with each set of circumstances as it develops. A revolutionary approach is both dangerous and unnecessary. Likewise, it is unintelligent.

The most striking economic danger today is inflation. Inflation is about the most disastrous economic disease. With every great war of modern times has come an enormous rise in prices. As we embark on a defense program, comparable in scope and potential in economic effects to a major war, the question is whether a new era of inflation is inevitable. Price

disorders exert a profound influence on the economy. They work against the efficient mobilization of the nation's resources. An inflationary process affects prices, profits, rents and wage rates very unevenly. It creates arbitrary and useless changes in the distribution of real income. It results in an irrational allocation of the war burden between different groups in the communities. It leads to endless controversies. It involves losses in productive efficiency. It might well mean the difference between victory and defeat. It is evident that the prevention of a price inflation is of absolutely vital consequence.

Experience demonstrates that once the vicious spiral is under way it is almost impossible to check it. The establishment, at the very beginning, of a so-called price ceiling has been suggested. Thus neither prices, wages, interest nor rents would be increased without approval. It is questionable whether such a plan, taken by itself, would be effective. It is the sources of price disturbances that must be successfully attacked. Otherwise the impact from the source will force prices through whatever ceiling may be established. Competitive bidding by government procurement agents is a possible source. The philosophy that high prices are essential to an increased output is another source. Wage increases are another. Financing methods that result in an increase of spending power out of proportion to the availability of consumer goods, over-liberal extensions of bank credit, are others. Most of these influences are more characteristic of the second phase of any war or defense program, because surpluses then no longer exist. It is to be believed that these sources of danger are recognized by our industrial, financial and political leaderships. From an economic standpoint I believe it possible to avoid a critical inflationary rise of prices for the period of the emergency. From a political standpoint I do not know. But, this is certain: inflation with all its disastrous consequences is the inescapable consequence of the economic fantasies of the day. Ultimately, it must be faced if we continue on the present road. Unfortunately the defense program serves to accelerate its coming.

Competitive bidding for essential materials can be checked by intelligent organization. Production needed from marginal

producers involving higher costs can be covered by specific arrangements rather than by a general rise in the price level. Priority is a useful tool for preventing price increases in materials. As shortages appear, such materials may be conserved for defense purposes by restricting the amounts other purchasers would be permitted to buy. This process curtails demand. It helps to maintain the price level stable. It is probably the simplest and most effective means of reaching the end.

Probably the wage rate presents the greatest danger and the one hardest to control. The principle is sound that the defense program should not be made the occasion for increases in wage rates that cannot, generally speaking, be justified. They can be justified economically only if supported by increased efficiency. During the first phase when the surpluses are being absorbed, most labor groups will receive an increase in weekly and, hence, annual wages because of steadier employment and the working of the full hours per week. Family income tends to rise still more because increase in available employment brings more opportunities to the wage-earner group. It is only when the cost of living increases as a result of the disturbance of the primary price level that wage rates should be adjusted to protect living standards. I repeat it is not economic in character. The greatest source of inflationary danger at the moment is in the increase in wage rates and its impact on costs. It deserves the most profound consideration.

Civilization has been cursed by the insatiable desire of men who have tasted power for more and always more power. The economy is subject continually to changing and conflicting forces. With the intensification of industrial enterprise and its expansion throughout the world, the relationship between these always changing forces becomes increasingly involved. I recognize this added complication. It demands increasing coördination of the component parts of the economy. But the danger to a free economy does *not* lie *there*. That is evolution! I see no justifiable reason, considering American industry as I know it, and the American economy as I have studied it, irrespective of any demands that may be made upon them, for our surrendering the principles which made this country so truly great in exchange for a wholly contrary

and foreign system—and one now challenging the American way of living. I am convinced that a free economy is the strongest economy. That the concept of a regimented economy fundamentally is far less desirable. Democracy and free enterprise—and one is inseparable from the other—afford more liberty, more opportunity, more happiness and greater prosperity than any other system yet devised. That is the record of the evolution of our civilization.

I hope that the domestic political-economic abuses, which have beset the economy, can be brought to an end, or corrected to an important degree. It would certainly be construed as justifying the return of confidence in the long-pull position of constructive enterprise. Encouragement would supersede discouragement. National economic sanity could be reëstablished. Unemployment would cease to be a national problem. The pent-up ambitions and opportunities for many years would be realized. Plans for the erection of new enterprises and expansion of current ones, set aside awaiting the clarification of the existing order, would correct the weaknesses of the economy as they have existed during recent years. I hope for all this, and not because such a stimulation is needed during the period of our defense activity, but because it and more will be needed as an offset to the highly prejudicial influences resulting from its liquidation. And, as to the impact of the post-war settlement, unless a greater enlightenment, less selfishness and more courage to deal with the realities exist than in the past, we may expect a further expansion of the restrictions against international commerce—a world divided more definitely into trading spheres of influence—and related trade agreements based on some system of barter—a further trend toward national economic isolation. These forces are bound to react adversely on an economy of surpluses such as ours, raising important problems as to the operation of American enterprise. In addition to this, we must accept the diversion of a far greater part of our productivity to the maintenance of an enlarged military establishment. That means, all other things being equal, a lower standard of living for our people.

It must be clear that the next few years will be critical ones. Our people are almost sure to be lulled into a state of material and mental complacency by what appears to be a period of

great prosperity. It has already started. They will little recognize its true economic significance, at least until subjected to a rude awakening. It will be a period in which the economy will be subject to the strain of entirely different and highly dangerous forces. It may be a period of inflation. It will be a time in which those possessing the highest orders of leadership and experience in industry, finance and government should be called upon to exercise all the intelligence they possess, with all the courage at their command to formulate policies to steer the economy on a safe and reasonable course. It will be no time for economic experimentation. The duty of the present to future generations is beyond our conception. Never before has occasion arisen which demanded the assumption of such responsibilities toward both the present and the future. Almost everything that Americans hold sacred is in the balance.

I thank you, Ladies and Gentlemen, for your kind attention! (Applause)

Remarks

Chairman Lamont: In just a moment, I am going to call upon our second speaker, our last speaker, the Honorable Robert P. Patterson, Assistant Secretary of War, who has come over from Washington at a time when the exigencies of the occasion have been such as to lead us to render him especial thanks. He was delayed in his arrival here, if he will allow me to explain, owing to the necessity of a sudden emergency operation in his own family. He had to get that under way before he could join us here.

I hardly have to introduce the Assistant Secretary of War to you. He has been the subject of what we would call a great many human interest stories in the last few weeks since his appointment. But his career is one of great significance. He graduated from college in the midst of the World War, went to law school, was admitted to the Bar, and then when trouble came on, he at once enlisted as a private in the first Mexican expedition. Then when America entered the war he was sent overseas. Thrice, he was cited for gallantry in action and received high decoration for his brave conduct, and special citation for his conduct after receipt of wounds. Returning to this country, he resumed the practice of law and attained great distinction. I am told he was the youngest individual ever elevated to the United States Circuit Court in this district, that court which stands next to the Supreme Court in the federal judiciary. That position, one of great honor and great responsibility, and with a great future before it, he dropped and put behind his back in order to accept the patriotic duty a few months ago of going over to Washington and serving us as Assistant Secretary of War. I ask your greeting to the Secretary!

(The audience arose and applauded)

Mr. Patterson: Thank you very much! It is very kind of my friend, Mr. Lamont, to introduce me in such a handsome way.

MILITARY ASPECTS OF THE NATIONAL DEFENSE PROGRAM

THE HONORABLE ROBERT P. PATTERSON
Assistant Secretary of War

A MILITARY establishment, unlike all Gaul, is divided into *two* parts—manpower and munitions. By the provisions of the National Defense Act of 1920, supervision of the procurement of material, all the way from shoelaces to tanks, is the function of the office of the Assistant Secretary of War.

If the paramount importance of national defense had not been vividly before the consciousness of the average citizen, certainly it would not have received the vast amount of attention accorded it during the recent election campaign.

I am not here to continue that debate. I am here to tell you that we have proceeded with most of our contracts, that American factories are working at capacity, that we are expanding plants everywhere, that the camps for the new Army are ready or are rapidly approaching readiness. We are not going to have any Valley Forges, or any embalmed beef. The flow of munitions has started; daily the volume of deliveries grows bigger.

When Stanton was Secretary of War, he had a munitions problem too. But the solution of it did not require a great diversity of industrial effort. He had to provide rifles and bayonets, sabres and cannon, cartridges and shells. Today, we must provide the modern equivalent of these items, barring the sabres, and, in addition, we must furnish hand grenades, mortars, machine guns, anti-aircraft guns, tanks, airplanes. The diversity of industrial effort required for their production would put an impossible burden on any nation that did not have a highly developed manufacturing capacity. Right now, the War Department is running the largest business in the United States.

Next will come the step for which all this planning and building and purchasing have been the mere preparation—the job of training soldiers.

How are we going about this? What procedure are we following?

We count an army of 1,400,000 men: 375,000 from the Regular Army, 300,000 from the National Guard, and the balance made up of selective service men who will be put into the Regular Army divisions and the National Guard divisions. There will be nine Regular Army divisions, eighteen National Guard divisions, four armored divisions, and two cavalry divisions. Those divisions will be somewhat smaller than the familiar division of 1918. There will be far more troops in the corps organizations and in the army organizations than there were then. We will not make new divisions of the selective service men as we did in 1918. The selective service men will be put in to fill up the gaps in the Regular Army and in the National Guard divisions. That is true at least for the first year. After that, other problems will arise and will be met by other methods. I will say a few words, however, about the career of the selective service man as he is taken for service. As you know, on October 29, some nine thousand capsules were drawn out of a glass bowl in Washington, each capsule containing a number, and each number representing a varying quantity of American men.

What happens next to those men whose numbers stood at the top? What lies ahead for the new citizen soldier? How will the government facilitate his transition from civil to military life and back again?

Let us follow the career of a candidate who has no dependents and is in good physical condition. He accepts the findings of his local board and is ready for the call to service. That call will come when his corps area commander, on instructions from the War Department, makes a requisition for manpower on the governor of his state. No requisition will be made until the corps area commander is sure that suitable facilities are ready—shelter, clothing, equipment, medical care. The camps will wait for the men, not the men for the camps.

Let us take a candidate whose home is in Herkimer, New York. A local physician has declared him sound. When his

call comes he is sent to Albany, where an Army Medical Board, composed of specialists, examines him with the greatest thoroughness. The advantages of such an examination to the candidate himself cannot be overemphasized. If the board cannot examine him on the day of his arrival, he will be quartered for the night in a good hotel and given his meals at a good restaurant.

If he passes his examination, he is immediately sent to the nearest Army reception center—in this case Fort Dix, New Jersey—with meals provided en route. If he were in a section of the country where an overnight journey might be required, sleeping accommodations would also be provided.

Now the Army finds out what he can do. His avocation may be more important than his vocation—more important both to himself and to the Army. He may be a soda dispenser whose hobby is photography, a leather worker with a passion for cryptograms. The Army can probably make use of these secondary capacities. More than that, it will so train these men that when their training periods are over they will be able to turn their avocations into vocations.

Modern armies, we know, are elaborate mechanical contrivances. There is scarcely any specialized technical ability which an army cannot turn to good account. I mention this somewhat obvious truism in order to make the point that the Army has its key men no less than industry, and that the key men in industry are likely to be men beyond the limit of the selectee age group.

Our Army is fully conscious of the fact that it must make as easy as possible the transition from civil to military life. It is keenly alive to the essential quality of the morale factor.

Troop training, in the eyes of the War Department—or, for that matter, in the eyes of any military authority anywhere in the world at any time—is the most important function of command away from the field of battle, and if the training is thorough and the equipment plentiful and in good order, the battles are unlikely to eventuate. At least this is true of the democracies. The "secret weapon" which Germany employed with such success in Poland, in Norway, in the Low Countries and in France was simply a program of the most thorough training—training not alone of officers but of enlisted

men. The high command knew what it wanted to do, and it had what and whom to do it with. This is the only magic that was used.

To carry the enormously increased training load which the present defense program imposes, we have revised the old peace-time organization of the Army all the way to the top. We are placing the emphasis on tactical rather than on territorial organization. Heretofore, outside of the G. H. Q. Air Force, we have had no actual tactical commands in the continental United States larger than the division. The explanation is simple: our Army was not *large enough* to furnish tactical commands. It was a skeleton organization, which is all we wanted it to be, and all we needed. Today our nine corps areas are grouped into four armies. All of our expanding field forces are now linked by a tactical chain of command.

The chief result of this step, so far as it affects the new citizen soldier, is that the training of all the elements of the field forces is now the main concern of the Army. In the past we have had many posts with small garrisons and small overheads. Now, with vastly greater concentrations of troops, we shall have to spend less in proportion to train them, and we shall get much more per capita for the money.

The end of his year's training will find our citizen soldier stronger in body, keener in mind, more alertly sensitive to his responsibilities to his country than ever before in his life. He will return to civil life to become a unit in a reservoir of trained manpower which will grow with the years into a permanent insurance of security.

So much for a brief, highly generalized account of the functioning of the mechanism whereby the selectee will learn the trade of soldier. He will be the bedrock of our defense program—the structure on which the whole edifice will be reared. His training will be both elementary and elemental. Now let us look at another facet of the program, an example of complex technical specialization. We are going to man a big four-engine bomber—one of the so-called "flying fortresses". For each of these bombers we shall need a pilot, a co-pilot, a navigator, a bombardier, two radio operators who

will also be gunners, a flight engineer (also a gunner), and an assistant to the flight engineer—eight altogether.

Our pilots in embryo must have had two years of college education or the equivalent. They must pass a mental as well as a rigorous physical examination. Of five hundred applicants, only one hundred will survive this double ordeal.

First the selected hundred will begin an elementary ten-weeks' course in a civil flying school. The government was using nine of these schools a year ago; today it is employing eighteen, and the total will probably rise to thirty. The course includes the theory of flight, navigation, astronomy, meteorology and related subjects.

By the time the ten weeks are up, forty of our hundred applicants will have dropped out. The sixty survivors will go on to take a second ten-weeks' course in a basic military flying school. Here actual flying training begins, with navigation and the allied sciences receiving more detailed consideration. Of the sixty men who begin this course, six will fail to complete it.

Fifty-four men now go on to the advance school for a final ten weeks of training. They make the transition from civil to military planes, hear lectures on the strategy and tactics of aviation, study and practice cross-country flying, navigation, gunnery. The candidates have by now been so thoroughly sifted that of the fifty-four who entered this advance course, only one will drop out. The fifty-three survivors, remember, are the distillation of five hundred applicants.

Within certain limitations, the successful candidates may select the branch of flying they prefer—bombardment, pursuit, observation.

So much for the selection and training of the pilot and co-pilot of our flying fortress. The navigator, like the pilot, began his training at a civil school. He has taken an additional twelve-weeks' course in ground work, astronomy, meteorology, and instrument work, before his selection as a member of our bomber's crew.

Later our navigators will be qualified as gunners. At present only the two radio operators and the flight engineer are so qualified. All these, plus the bombardier and the as-

sistant flight engineer, have of course undergone special and arduous training in their own particular fields.

Our ground technicians—the men upon whom the effectiveness of our flying fortress depends as greatly as it does on the crew themselves—will include armorers, machinists, welders, metal workers, weather forecasters, teletypists, instrument specialists, propellor specialists, carburetor specialists, and bombsight maintenance specialists, not to mention technical clerks.

We are turning out 250 pilots every five weeks. By next August the figure will have risen to 1,250 in the same period. Similar increases will be recorded in the other groups—for example, we are now turning out 275 radio operators for the Air Corps every two weeks, and will increase the number to 400 by the first of the year.

I have given you, in some detail, accounts of the training of the citizen soldier and of the candidate for the most exacting and technical branch of the military establishment. I have tried to indicate to you the thoroughness with which the War Department is going about its job. It is a big job—the biggest of its kind that the nation has ever tackled. We shall see it through. (Applause)

Remarks by the Chairman

Chairman Lamont: We thank you, Mr. Secretary, for this very clear exposition on a phase of our defense about which we know so little.

And now, in adjourning this session of the Academy, let me give the very particular thanks of this audience and of all the Academy members once more to those who have taken part in the sessions of this day. I feel sure that their contributions, the studies of these men of high professional attainment who have spoken to us this morning, afternoon and evening, will prove of the greatest value in our great defense effort, the greatest peace-time effort the country has ever made. This effort has been described in glowing words by Mr. Sloan who has emphasized the sacrifice that we must all undergo. It may not be the sort of sacrifice (please God!) that in England the common man is called upon to make, where his spirit rises in the torn and tortured streets of London, yet it is clear that sacrifice of one kind or another will be required of every member of this audience and of every member of the American community.

We have recently heard much of the importance of unity in our country. Yes, but I hardly think we need to hold unity meetings. We are all working and will work to the same end. We are all behind our President. But as I close this meeting and in a way as a benediction, I am going to read to you, bearing in mind this great defense effort in the whole American community, a prayer from the Episcopal prayerbook. I will ask you to rise and join in, if you will, and with that we shall adjourn this session of the Academy.

> "Bless our land with honorable industry, sound learning, and pure manners. Save us from violence, discord and confusion; from pride and arrogancy, and from every evil way. Defend our liberties, and fashion into one united people the multitudes brought hither out of many kindreds and tongues."